

UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
OFFICE OF ELECTRICITY DELIVERY AND ENERGY
RELIABILITY

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ELECTRICITY ADVISORY COMMITTEE
+ + + + +
MEETING

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WEDNESDAY
OCTOBER 19, 2011
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The Electricity Advisory Committee met in the Conference Center of the National Rural Electric Cooperative Association Headquarters, 4301 Wilson Boulevard, Arlington, Virginia, at 2:00 p.m., Richard Cowart, Chair, presiding.

MEMBERS PRESENT

RICHARD COWART, Regulatory Assistance Project,
Chair

THE HONORABLE ROBERT CURRY, New York State
Public Service Commission

JOSE DELGADO, American Transmission Company

(Ret.)

ROGER DUNCAN, Austin Energy (Ret.)

ROBERT GRAMLICH, American Wind Energy
Association

MICHAEL HEYECK, American Electric Power

JOSEPH KELLIHER, NextEra Energy, Inc.

EDWARD KRAPELS, Anbaric Holdings

RALPH MASIELLO, KEMA

RICH MEYER, National Rural Electric
Cooperative Association, for Barry Lawson

DAVID NEVIUS, North American Electric
Reliability Corporation
IRWIN POPOWSKY, Pennsylvania Consumer Advocate
WANDA REDER, S&C Electric Company
BRAD ROBERTS, Electricity Storage Association
THE HONORABLE TOM SLOAN, Kansas House of
Representatives
GORDON van WELIE, Independent System Operator
of New England
MIKE WEEDALL, Bonneville Energy Administration
BRIAN WYNNE, Electric Drive Transportation
Association

PRESENT FROM THE DEPARTMENT OF ENERGY

PATRICIA HOFFMAN, Assistant Secretary for
Electricity Delivery and Energy
Reliability

DAVID ANDERSON, Office of Energy Efficiency
and Renewable Energy

CAITLIN CALLAGHAN, ORISE Fellow, Office of
Electricity Delivery and Energy
Reliability

KERRY CHEUNG, Office of Electricity Delivery
and Energy Reliability

GRAHAM COATES, Extern

LOT COOKE, Office of General Counsel

BILL PARKS, Senior Advisory, Office of

Electricity Delivery and Energy
Reliability

HANK KENCHINGTON, Deputy Assistant Secretary
for R&D, Office of Electricity Delivery
and Energy Reliability

DAVID MEYER, Office of Electricity Delivery
and Energy Reliability

MATT ROSENBAUM, Office of Electricity Delivery
and Energy Reliability

ENERGETICS STAFF PRESENT

CAMI DODGE

NATALIE KEMPKEY

KATIE SHAY

PEGGY WELSH

ALSO PRESENT

DEREK BANDERA, GenOn Energy

TOM BIALEK, Chief Engineer, Smart Grid,
San Diego Gas & Electric Company

JIM CREEVY, NEMA

JOHN HOWES, Redland Energy

WARREN LASHER, ERCOT

ROBERT LASSETER, Emeritus Professor, College
of Engineering, University of Wisconsin-
Madison

PHILIP MIHLMESTER, ICF International

DEBRA RAGGIO, GenOn Energy

JOHN SHENOT, Regulatory Assistance Project

MARY TOLER, Battelle

FRITZ WALKER, Air Products

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1 P-R-O-C-E-E-D-I-N-G-S

2 2:08 p.m.

3 CHAIRMAN COWART: Good afternoon,
4 folks. If the members of the committee would
5 please take your seats. All right, good
6 afternoon and welcome.

7 This is Richard Cowart of the
8 Regulatory Assistance Project and this is the
9 meeting of the Electricity Advisory Committee
10 of the Department of Energy.

11 We are expecting Pat Hoffman to
12 arrive in a few minutes, but I thought we
13 should get going anyway. And one of the
14 things we historically have done is to just
15 allow people to introduce themselves as we go
16 around the room.

17 And then we'll hear from our
18 guests, as well. There's a, there will be an
19 opportunity for members of the public, at then
20 end of today's meeting, to make a public
21 statement.

22 I think we'll set aside ten

1 minutes or so at the end. If there is anybody
2 who, in that category, make yourself known to
3 Peggy Welsh and we'll get you on the agenda.

4 So, as I said, this is Richard
5 Cowart --

6 MS. WELSH: Remind people that
7 this is being recorded, so people need to
8 speak into the microphone.

9 CHAIRMAN COWART: And as in the
10 past, these proceedings are being recorded and
11 transcribed, so please make sure, members,
12 when you're speaking, to speak clearly into
13 the microphones, so the court reporter can
14 understand what we're saying.

15 Let's just go around the room,
16 going in this direction and then we'll go
17 around the table and then hear from folks in
18 the audience.

19 MR. PARKS: This is Bill Parks
20 from the U.S. Department of Energy, Office of
21 Electricity. Thanks for the chance to be here
22 today.

1 MR. KRAPELS: Ed Krapels with
2 Anbaric Transmission.

3 MR. KELLIHER: Joe Kelliher,
4 NextEra Energy.

5 MR. HEYECK: Mike Heyeck, American
6 Electric Power.

7 MR. GRAMLICH: Rob Gramlich,
8 American Wind Energy Association.

9 MR. DUNCAN: Roger Duncan, Former
10 General Manager of Austin Energy, currently
11 with the University of Texas.

12 MR. DELGADO: Jose Delgado, Former
13 President of the American Transmission
14 Company.

15 MR. CURRY: Bob Curry, Public
16 Service Commissioner from New York. As some
17 of you have noticed, we started out with four
18 Public Service Commissioners on this panel,
19 and I'm the last one standing.

20 Whether there's anything to be
21 read into that or not, I don't know. But I
22 just thought I'd point it out. I think one

1 got promoted by going to DOE. Another got
2 moved sideways to go to the Illinois, excuse
3 me, to the Texas Railroad Commission and the
4 third one went into private practice.

5 So there's hope for me someplace
6 out there.

7 MR. WYNNE: Brian Wynne, with
8 Electric Drive Transportation Association.

9 MR. WEEDALL: Mike Weedall,
10 Bonneville Power.

11 MR. VAN WELIE: Gorton van Welie,
12 ISO New England.

13 MR. SLOAN: Tom Sloan, State
14 Legislator from Kansas.

15 MR. ROBERTS: Brad Roberts,
16 Electricity Storage Association.

17 MS. REDER: Wanda Reder, past
18 President of IEEE-Power and Energy Society,
19 and also with S&C Electric Company.

20 MR. POPOWSKY: Sonny Popowsky, I'm
21 Consumer Advocate of Pennsylvania.

22 MR. NEVIUS: Dave Nevius, North

1 American Electric Reliability Corporation.

2 MR. R. MEYER: Rich Meyer,
3 National Rural Electric Cooperative
4 Association.

5 MR. MASIELLO: Ralph Masiello,
6 KEMA.

7 MR. D. MEYER: David Meyer,
8 Department of Energy.

9 SECRETARY HOFFMAN: So, let's
10 start over there.

11 (Off mic introductions.)

12 MS. WELSH: Peggy Welsh,
13 Energetics.

14 MR. ANDERSON: David Anderson,
15 Department of Energy, Vehicle Technologies.

16 (Off mic introductions.)

17 CHAIRMAN COWART: All right, thank
18 you very much. As you know, from looking at
19 the agenda, we have over this afternoon and
20 all day tomorrow, actually a great lineup of
21 discussions, some pretty thorny and
22 interesting topics.

1 And one of our other objectives of
2 this meeting is to begin the committee's
3 discussion of the topics that we should be
4 taking up in our work plan for 2012.

5 One of the thoughts that the
6 committee leadership has had, and the
7 leadership team of the committee consists of
8 the three Subcommittee Chairs, myself along
9 with support from the Department and David
10 Meyer and Peggy Welsh.

11 We've been discussing the dialogue
12 between the committee and the department. And
13 our unanimous desire to deepen and speed up
14 the dialogue.

15 And one of the techniques for
16 doing that really is, we're starting this
17 afternoon, which is to begin with a very
18 thoughtful vision statement of the
19 Department's view of the future power grid,
20 that Bill Parks is going to begin with, and
21 lead us off with.

22 And then to ask ourselves the

1 questions, what does, what is that, where does
2 that take us in terms of what the committee
3 needs to do, both to advise the Department on
4 steps that might be taken to actualize that
5 vision or steps that might be taken to amend
6 the vision.

7 And thinking concretely about the
8 work of the three subcommittees, and also
9 frankly thinking about things that might be
10 beyond the work of the existing structure of
11 the subcommittees for which we believe ought
12 to be addressed anyway.

13 And we hope that that leads to a
14 continuing process of advice and engagement
15 with the Department that will bring to bear
16 the really terrific expertise of the members
17 of this committee in a more direct engagement
18 with the Department.

19 And that's the launch for where we
20 want to be in 2012, as we consider the work
21 plan for this committee. So there will be a
22 couple of steps involved in that.

1 One step is that the subcommittee
2 Chairs will, together, come up with a list of
3 ideas for consideration. We're going to
4 solicit those, all members of the committee in
5 a conversation around them and then we're
6 going to come up with some concrete steps that
7 we want to take.

8 Especially in the first half of
9 2012. Do you want to say something more about
10 that process, David?

11 MR. D. MEYER: Well, one way that
12 we can pursue this development of a 2012 work
13 plan would be to get a list of good ideas,
14 things that have come to mind to you, as
15 individuals, or on your Subcommittees or
16 something of that sort.

17 But it, say if we had ten really,
18 what seem to be strong ideas, then we would,
19 we at DOE, we would convene a group that
20 would, ideally it would meet with the full
21 committee but that may not be feasible.

22 But I'm thinking of appropriate

1 people from appropriate arms and legs of DOE.
2 That is we seen and in the case of this recent
3 draft paper, with respect to electric
4 vehicles, it's important to connect with the
5 people at the Department who are working on
6 that topic, whatever it is.

7 Unless it's a topic where, for
8 some mysterious reason, no one is actually
9 focusing on it, then that's different. But,
10 in general, we want to encourage more
11 conversation up front, between the committee
12 members and the relevant parts of DOE.

13 So that you start off with a much
14 richer understanding of what has been thought
15 about or what is the rationale for whatever
16 DOE is currently doing in a particular area.

17 And we think that's a fruitful
18 place to begin. But, at any rate, we would
19 convene a group of appropriate DOE people,
20 just to discuss the various items on the list,
21 and help you narrow the list down to a
22 manageable number.

1 So, that's one idea. It's not
2 necessarily, you know, the final step in terms
3 of how we'll manage this, but it's a good
4 possibility.

5 CHAIRMAN COWART: All right,
6 anything further on that topic? I'm looking
7 at the Subcommittee Chairs to see if there's
8 something you want to add right now about
9 that. Okay.

10 That allows us to move directly to
11 the substantive presentation by Bill Parks,
12 which we should just get right into and
13 welcome him.

14 Someone who is known to all of
15 you, I'm sure. And it looks like he's ready.

16 MR. PARKS: Will it's great to see
17 some of you again. Thank you for the chance
18 to do this. I want to spend a couple of
19 minutes actually before jumping into this, to
20 give a little bit of context about why, what
21 this is and what it isn't, a little bit to
22 help that.

1 This is by no means a definitive
2 end product. And we had one conversation with
3 some planning group for February's NARUC
4 meeting about some of this. And this is only
5 the second time we've actually said anything
6 that, this is actually the first public
7 discussion of it all.

8 We wanted to bring that here. And
9 what this is, is to understand a little bit
10 about what the Department has been doing.

11 If you look at the past, really
12 two years, the PCAST report came out and there
13 was a Quadrennial Technology Review that Dr.
14 Koonin led from the Office of Science, that
15 was across DOE activity.

16 And that report has just come out
17 in the last six weeks, and the appendices are
18 still to come out, which talk about the
19 technology areas covered by that.

20 In the grid case, there were three
21 grid sections. And Kerry Cheung, who
22 introduced himself, and I worked on that.

1 Hank Kenchington, who I think will be here in
2 a little bit, worked on that, and Imre Gyuk
3 from our office, as well as others across the
4 Department worked on it, and across the labs
5 worked on it.

6 And so that was one foundational
7 piece. The other thing that has come in from
8 the Secretary and Arun's viewpoint at ARPA-E
9 and when Arun was acting Secretary, is to look
10 at can we get more cross functionality at DOE?

11 So specifically, can we get ARPA-E
12 and Science and OE and EERE working on the
13 grid space, because of the issues that you see
14 there right now.

15 And what are the ties ultimately
16 to nuclear and fossil and the other programs.
17 And so that was a focus of this. And so in
18 the April time frame, a group of us were asked
19 to come together.

20 Representatives from ARPA-E, from
21 Science, from EE, ourselves actually from the
22 CFO's office and to look at what, start

1 thinking some things about the grid from a
2 holistically DOE standpoint, internally.

3 And recognize that this is the
4 internal part of the discussion. And what I
5 ultimately, myself, would like to do is, is
6 start to move this out and discuss it publicly
7 over the next six months and come up with what
8 ultimately is a public/private vision.

9 Similar to what we did in 2003,
10 when we did the vision for 2030. So that's
11 where I would like this kind of thing to go
12 and kind of the background of that. Any
13 questions about that, before I start?

14 (No response.)

15 MR. PARKS: Plugging America into
16 clean energy. So what we've seen, and I think
17 this is important to say, that it's crucial in
18 this space, as so many of you know, this is,
19 that policies, markets and technologies be
20 thought about at the same time.

21 That we cannot just, for example,
22 have technology solutions that are wonderful,

1 and expect them to automatically change the
2 space.

3 I think that that is not
4 necessarily universally discussed, and I think
5 it's critical that it be so. And, or that it
6 be argued that that's not a valid thing to do.

7 And that the idea that we need to,
8 and as we've tried to do in this office for a
9 while, we need to blend how we look at all
10 that and make sure that we are opening up
11 markets or we are opening up the opportunity
12 to move technology into that space as we think
13 about our R&D portfolio, for example.

14 If you look at the left-hand side,
15 the DOE Strategic Plan came out this year.
16 Again, Dr. Koonin was involved in that and it
17 was a cross DOE look.

18 On the grid side, overall, three
19 goals jumped out early. Many other things are
20 embedded in it. But on the grid side, there
21 were really only three short-term goals that
22 actually made the final product.

1 And I think that we all looked at
2 that and said, that's not what we really want,
3 if we're talking about a strategic plan. We
4 want to think about where does this take us in
5 the future and how do we get there and how do
6 we incorporate the kind of thinking that we've
7 been doing over the past year or year and a
8 half.

9 This chart was first developed in
10 2001. And it was last modified in July. And
11 it's been modified a number of times since
12 then. Peggy.

13 MS. WELSH: Can you use the
14 microphone.

15 MR. PARKS: Sorry, I want to
16 wander and it doesn't allow me to do that very
17 well. So, and it shows, the real purpose of
18 this is it shows that there are a lot of
19 viewpoints out there, not just our viewpoint,
20 of what the future is going to look like.

21 And, thank you, Peggy, I
22 appreciate it. It shows what the future is

1 going to look like. And what we really know
2 in looking and backcasting a little bit, is
3 we're not very good at predicting what that
4 future scenario is going to be.

5 And, there is a lot of opportunity
6 sets. So, I don't really know, as I stand
7 here, what's a percentage of natural gas or
8 nuclear or coal or renewables is going to be.

9 And I know that very much, had I
10 had this discussion three years ago, I would
11 hear a different set of what those percentages
12 are and what I would hear today and three
13 years back from that, a different set, yet.

14 And having been in this business a
15 while, as many of you, we've seen ups and
16 downs. We saw the natural gas bubble in the
17 '90s, we saw, you know, push for clean coal in
18 the '80s.

19 And so we know that these things
20 wax and wane. If I look at the hydrogen fuel
21 cell discussions over the last decade,
22 certainly a lot of different predictions in

1 2002 versus 2008, if I look at that space.

2 So, I think the point is we really
3 don't know. But we do know that it will
4 change. And we know that there are degrees of
5 uncertainty. And we know that there are
6 things that seem to be evolving if you take
7 those decade-long kind of looks of things and
8 we seem to be saying we are seeing a changing
9 supply mix.

10 We are seeing demand
11 transformation, we are seeing the complexity
12 of the grid expanding and how we're looking at
13 it and the vulnerability of energy
14 infrastructure.

15 What's happening in the cyber
16 security space is pretty crucial. And so I
17 think those trends are valid, telling you
18 exactly what scenario, what percentage of any
19 entity, I couldn't stand here and do it.

20 And so from that, if these trends
21 are correct, then we will see a different grid
22 at some point. And how can we be ready for

1 that.

2 And maybe more importantly, what
3 are the commonalities that are kind of no
4 regret things that we want to think about and
5 do as we move forward. Because if I look at
6 different scenarios, whether I pick a natural
7 gas scenario or I pick a nuclear scenario.

8 Or I pick a demand response or
9 efficiency scenario, some things come out no
10 matter what. I think it's a pretty good bet
11 to move toward some electrification of
12 vehicles.

13 I think if you look at renewable
14 penetration today, you have places that this
15 year are hitting 40 percent wind penetration,
16 or have hit it in the last few years.

17 They have a problem today. Now we
18 may never get to 40 percent across the United
19 States as an average, but the local conditions
20 or situations may be that we probably better
21 figure out how to do that pretty fast, because
22 there are systems that are vulnerable today to

1 40 percent wind or 40 percent solar.

2 If you look at distribution
3 circuits, PV in California and Hawaii, some of
4 them are north of 50 percent solar PV
5 penetration. Do we really know how to design
6 circuits to do that?

7 So there's some, I believe a set
8 of no regret kind of things that we should
9 look at, or things that are truly
10 breakthroughs, that if we could get them to
11 happen, would change how we're going to look
12 about this -- would change transmission
13 planning, would change how we think about
14 putting system together.

15 And we don't even have to get into
16 arguing about what kind of market it's going
17 to be in the future, but say that some of
18 these things are really just going to happen
19 no matter what.

20 So we were challenged by the
21 Secretary to come up with a single vision for
22 the grid. A single SunShot type thing would

1 have been ideal. A dollar a watt.

2 We failed to do that for the grid.
3 How many people are shocked to hear that. We
4 could not find a single metric that we thought
5 was anywhere realistic about the entire grid
6 space with things that could be handled.

7 So this is a work in progress.
8 It's not a final thing. But these are some of
9 the things that we thought as a team, over a
10 couple of months and we worked at it.

11 And the idea that we -- can we
12 enable a seamless cost-effective electricity
13 system from generation to end use, capable of
14 meeting the clean energy demands and capacity
15 requirements of this century while allowing
16 consumer participation and electricity used as
17 desired, consumer choice. So the things that
18 did, we thought factored into is the
19 President's goal of a significant scale up of
20 clean energy, broad definition of clean energy
21 there of 80 percent.

22 So how can we talk about that

1 transition happening? Allow 100 percent
2 consumer participation and choice in that,
3 including the things shown there.

4 A holistically designed system
5 capable of AC-DC hybrid configurations, and
6 I'll talk a little bit more about that in a
7 few minutes.

8 But the idea is, you know, when we
9 first look at a vision in 2003, we talked
10 about do we have a backbone, do we not, that
11 debate continues.

12 The answers raised in my opinion,
13 almost ten years ago, have not been answered.
14 And so can we, as we think about offshore
15 wind, as we think about, you know, the needs
16 and the balance of how can we build that
17 transmission.

18 You know, what can we do about
19 reconfiguring and those kind of things. What
20 is, can we come up with some path forward,
21 especially that feeds back to our technical
22 decisions about what kind of R&D do we fund.

1 And then maintain global
2 competitiveness and leadership in the
3 technology arena and not forget that we want
4 a reliable, secure and resilient grid. And
5 the idea that maybe the, you know, a vision of
6 a grid that has changed.

7 You know the first 100, 120 years,
8 we electrified this country, and that was
9 extremely significant and extremely powerful
10 for the development of the modern era and the
11 stability of this country and economic growth
12 of this country, was tremendous.

13 And, electricity as almost a
14 commodity, because you can't store it, but
15 available to the majority of Americans today.

16 What do we need it to be. We need
17 to not lose those attributes of reliability
18 and low cost and yet think of it, can we think
19 maybe of electricity as a service. And now
20 you talk about there is that choice and you
21 are going to buy different packages or you
22 have access to different ways to put this

1 together, to create what your need is for your
2 situation.

3 And allow the system to be that
4 flexible, and to have that kind of control
5 that allows a consumer, whatever kind of
6 consumer, to have a choice of what they're
7 after.

8 Can you get, you know, the desired
9 power quality where you want it? Hey, Pat.
10 And can it enable consumer participation and
11 electricity markets, customer flexibility, in
12 terms of what kind of technologies do they
13 want access to.

14 And in addition to provide dynamic
15 protection privacy in cyber security. Can you
16 build all those things in? Can you do those
17 things on top of all the other requirements
18 that people want to put on, whether they're
19 RPSes or whether, and can you not break the
20 bank.

21 Can you actually make it
22 beneficial to consumers and not just continue

1 to add cost to everything that the system does
2 for them.

3 And then, as we think about all
4 the things going on in the Department and
5 across the world, really, have we really
6 thought out, internally? And the answer for
7 us is no.

8 What do we really want in terms of
9 a hybrid grid? In terms of AC-DC? So if I
10 think about the end-use sector. If I think
11 about LED lighting, if I think about electric
12 vehicles, I think about energy storage.

13 I've got DC systems that are, that
14 want to naturally be that way within those,
15 now, do I want to think about, how do I market
16 that?

17 How can I get efficiencies in my
18 systems if I think about a different kind of
19 configuration that I have in a household today
20 or a building complex today.

21 Do I think about different kinds
22 of linkages that I want today at the

1 transmission level that could add to this and
2 allow us to be more flexible in our designs.

3 As we think about how hard it is
4 to get transmission in and do we want to move
5 some things from point to point. Are there
6 options for more connectivity on the DC side
7 and those kind of things.

8 And from our viewpoint we just
9 don't think we've studied this adequately and
10 we need to understand better what those
11 opportunity sets are and what the potential
12 could be in the future.

13 If I think, if I, I mentioned the
14 QTR, this is a variant of a diagram that's in
15 the overall QTR, looking at stationary across
16 the board, looking at transportation. And the
17 modernize the grid is in there and we've
18 enlarged it.

19 And the point that we wanted to
20 make here was that to progressively electrify
21 the fleet, deploy clean energy generation and
22 increase building industrial efficiency, you

1 can't do that without the grid improving at
2 the same time.

3 They are dependent upon those. I
4 that a question? I'm sorry, quadrennial
5 technology review. I mentioned in the
6 beginning Dr. Koonin led that looked across
7 the DOE's portfolio.

8 Again, that report is out. It
9 came out in the last four or five weeks. The
10 technology parts will be out soon. But we'll
11 get you that, make sure you have access to all
12 that.

13 Because it's, in my opinion it's
14 well worth reading and understanding, but this
15 is from that document. So the grid connects
16 and touches many parts of the future energy
17 system.

18 And that, so, we have to think
19 holistically across Departments. It's not
20 just about building a grid team, that I talked
21 about, but it's how do we connect to the
22 vehicle program. How do we connect to the

1 buildings program and make sure that we've got
2 the seamlessness that we talked about that.

3 Lastly, we will just make the
4 point, everybody says it's too complicated.
5 That this is too big. You know, we can't come
6 up with a single, you know, a single goal to
7 handle it. And, from our viewpoint, it really
8 felt, from the team standpoint, that it's just
9 too important to ignore.

10 We have to find solution sets.
11 Despite all the complexity, we have to find
12 paths forward to improve this. The system,
13 the requirements for the people in the United
14 States, the system itself are going to demand
15 changes.

16 We ought to be proactive about how
17 to handle that and make sure we're getting
18 what we really want and I can optimize from
19 that. This is a document that we created from
20 those discussions. And within the red box
21 that squiggles around, that's what we thought
22 was the Grid Technical Team Space that we were

1 talking about.

2 And it shows generation and end-
3 user use which were not part of the team's
4 purview but it shows the connectivity to
5 those.

6 Because, again, we feel that it's,
7 from this T&D space or this team's standpoint,
8 that we're going to talk about the seamless
9 connection idea and we're going to talk about
10 that really the grid controlling needs to, if
11 we're going to tie demand response in, in a
12 big way.

13 If we're going to tie in
14 efficiency programs, we're going to tie
15 integration of different things, especially
16 renewables with variability.

17 How do we, who controls that? How
18 does that happen? And we think it happens in
19 this space. And so that changes, it's not
20 just thinking about do I build a transformer,
21 do I connect a line from A to B?

22 It's what kind of connectivity do

1 I want where. What are the regional
2 variability that we need to understand and
3 what are the solutions sets that people want
4 both locally and regionally to make that
5 happen.

6 Understanding the system,
7 visualization, communications, computation.
8 Understand the flexibility for stability in
9 that, and the security needs are critical
10 across that space.

11 Because it's no good to leave the
12 vulnerability in all the buildings that can be
13 an access point to the entire system. You
14 have to think about how can you protect that.

15 And, of course, integration and
16 renewables, there are activities we have going
17 on within the Department and with our partners
18 in the private sector, and interface with end-
19 users.

20 One thing I'll talk about toward
21 the end is just Smart Grid Hub concept and the
22 idea that we want to spend some time on the

1 transmission distribution connection space,
2 because we think maybe that's a place where we
3 can talk about the communication needed.

4 And the different kind. Can we
5 think ultimately, what can this be? What
6 could a substation of the future kind of
7 concept be that it's not today?

8 So we took all of these actions
9 from the QTR again, the senior leadership
10 discussions and in our own meetings and we
11 said all of these things in the circle are
12 important, and I'm going to spend a little bit
13 of time on the ones in yellow.

14 But we sent the recommendations to
15 the Secretary and then part of this fed into
16 the 2013 budget process, which of course is
17 not out yet. But it did, the discussions were
18 with Secretary Arun and Pat about, you know,
19 what do we think and what does that say about
20 the portfolio? That we need to develop
21 critical institutional techno-economic goals.

22 We need to fully explore and

1 integrate AC-DC and really aim for some no
2 regret, high value actions, that we could do
3 today.

4 So, one area that really jumped
5 out is a potential place to do some things.
6 And, again, this is a DOE viewpoint. So what
7 we've done is we've incorporated some of the
8 things in ARPA-E, some of the things that are
9 going on in EE, some of the things that are
10 going in Science, into our planning here.

11 And we are co-working some of
12 these issues. So, if you look at some of the
13 things that we've done in gallium nitride,
14 some of the things that ARPA-E has done in
15 silicon carbide, and the activities going on
16 in our public and private partnerships, we
17 think it's feasible to think about some
18 longer-term goals in this space.

19 And if you can really get price
20 effective for, for example a 20kV 200 amp
21 solid state device, that starts to change what
22 you can think about doing in the entire grid

1 space.

2 And so the next two things are
3 what kind of things could we think about
4 doing. One of those would be, okay, what if
5 we could get AC-DC converter stations the same
6 price as AC converter stations today.

7 How impossible, how hard is that?
8 Let's explore that and see. If we could do
9 that, that changes some decision making
10 because that's the high cost component of
11 going into the DC.

12 And we can think about different
13 kind of configurations than we think about
14 today. And these are just an idea of what
15 would it take, from a cost reduction and the
16 impact reduction to concentrate on those
17 things.

18 So can we, within the Department,
19 utilize the work on things like thermal
20 management in the science side and bring that
21 to bear on the grid thinking from ways that
22 we've not done before.

1 Utilize that four and a half
2 billion dollars we're spending every year in
3 the science side of the house to grid
4 application and that's really what we want to
5 do from a technology standpoint.

6 So can we do that? Are these the
7 right goals? We continue to explore those.
8 There are things that we think have some
9 merit. Some of them have some background
10 behind it.

11 Some of it I wouldn't want to
12 defend in court, yet, but I hope to get to the
13 point where these discussions lead us to, you
14 know, how can we go forward on these things.

15 So is it possible to talk about a
16 3x increase in power levels, allowing on-
17 ramps, off-ramps, that kind of thing. The
18 second one is, can we go to solid state
19 transformers.

20 Can we create a transformer at
21 that kind of level, we're not saying all
22 levels necessarily but can we say the 138kV,

1 create one that has other functionalities
2 built into it.

3 So we now create a problem
4 approaching it from a solid state. We have
5 the kind of devices that we think are pretty
6 imminent and there's some things that we know
7 about that.

8 Can we start to build on these
9 other features that we've been talking about
10 for awhile. We've done single demonstrations
11 in a couple of cases, but we really haven't
12 pushed into the market, and create a new way
13 to handle this.

14 And what are those goals that are
15 reasonable to tackle when it comes to that.
16 Can you build in fault current limiting at
17 that kind of level.

18 Can you really get the two-way
19 power flow that you want. Can you embed the
20 sensors for communications. How scalable is
21 it, you know, to what levels can you really
22 take this.

1 Advance modeling is something that
2 we've been pushing and science has been
3 pushing. And, again, can we really think
4 about this space differently.

5 And there's been a couple of
6 meetings that Gil Bindewald and Sandy
7 Landsberg in Science has held, over the last
8 year and ARPA-E has held. To think about can
9 we approach this differently?

10 What do we really need to move to
11 new models, planning operational tools. As we
12 think about all this data that's going to come
13 out of the ARRA demonstrations, of the phase
14 to deployment that we have.

15 How are we going to use it? Do we
16 really understand it? Do we have the
17 computational ability to do this? And there's
18 some pretty, pretty neat things happening in
19 the basic computational space that we want to
20 apply to the grid and streamline it into this
21 kind of thinking. Energy storage. Those, the
22 things I mentioned today have not been in our

1 portfolio in the last couple of years.

2 They are, if you look at the
3 recent awards being made, we're dabbling in
4 this space, in these spaces as a Department
5 now.

6 Not what I would call major
7 thrusts. Some single shop ARPA-E kind of, you
8 know, the high risk shots at some of these
9 things. Some of them, we think, are going to
10 have payoffs, but trying to start to build a
11 case that these need to be major thrusts if we
12 really think it's going to have the kind of
13 advantages that we do, build a case for that.

14 And we are in the process of doing
15 that. Energy storage, we have an existing
16 portfolio. We have a program, that program
17 across the Department spans all the TRLs, the
18 technology readiness levels one through ten
19 from basic science to getting it into the
20 private sector, getting it into the market.
21 There's actually a lot of activity, both from
22 the stationary side and on the transportation

1 side where, of course, our budget, Imre Gyuk
2 leads the effort on the stationary side.

3 ARPA-E has a strong presence, has
4 had the last two years in this space. In
5 fact, I believe this, I believe it was last
6 week or this week, the peer review is
7 happening.

8 A joint peer review through ARPA-E
9 and OE on what's happening in the storage
10 area. There's a lot of VC money moving into
11 this space.

12 The last couple of years, there's
13 just a lot, we have 16 RE demonstrations that
14 are putting out storage projects. This is a
15 very robust area right now.

16 And there's some really neat
17 things happening in different kind of
18 batteries, different kind of chemistries.
19 You see from typical lead-acid with carbon
20 additions that are changing the lead-acid
21 space all the way up into the things like air
22 batteries, different kind, you know, liquid

1 batteries to look at in different ways.

2 Very exciting. Can we reach these
3 kind of goals? Can we push this in a way that
4 we've not pushed it before? Can we bring some
5 of the basic science, understanding the
6 materials into this.

7 Enter dielectrics into all of
8 this, going back to that last one. That's the
9 questions that we're asking ourselves. Cyber-
10 security. The point of this slide is it's
11 complicated.

12 And it's getting more complicated
13 and the system is, and Hank Kenchington who
14 walked in, and can talk for a long time about
15 this.

16 We want to try to stay into the
17 area where it's secure and reduce
18 vulnerabilities and tremendous concerns and we
19 have a strong effort in this area. But,
20 again, can we bring in more of a total
21 departmental effort into this and it's
22 happening. So I talked about the technology

1 and some of the thoughts on the technology
2 side.

3 And, as many of you know, Lauren
4 Azar has joined the Secretary's staff to help
5 look at some of the institutional areas with
6 us. And David is working and Larry Mansueti
7 working with her daily on those kind of
8 things, and Pat.

9 As you know, it's complicated
10 space. All right, we accepted that before.
11 And so it means that you have to really come
12 at it in a lot of different ways at the same
13 time and you have to think about how can you
14 bring innovation to avoid risk aversion and
15 really to really get buy-in and to really
16 protect the consumer in the process.

17 So, in the short term, this is
18 kind of some of the things that we're
19 currently working on. We have the
20 interconnection planning process going on.
21 And the three interconnections, it's a good
22 start. It's, you know, Bill, we don't

1 normally get 80 million dollars to throw into
2 an area and really tackle it.

3 It will not, in my opinion, will
4 not be sufficient to carry everything. We've
5 got to all carry through on it, at all levels,
6 federal, regional, state to truly make this
7 happen.

8 And to get the benefit of all the
9 effort that's going into the planning today.
10 How do we do that? What analysis do we need
11 to really show people some of the decision
12 makers in that process. What can we do?

13 And how can we expand what we're
14 doing. And then it gets into better analysis
15 of tools, understanding needs, again back on
16 the AC-DC issue, T&D, investment and decision
17 making, education outreach.

18 How do we make sure that people
19 have the same basic vocabularies to move
20 forward and move on to the next five years.
21 What are we going to do from the analytical
22 basis side, to help with the state, regional

1 and federal coordination and decision making.

2 I talked, we have Smart Grid Demos
3 in the ARRA funds, but we also had, I talked
4 about it a little bit, this smart grid hub
5 concept.

6 And the idea that, can we think
7 about, from the hub concept, a functional
8 substation with components, connected to an
9 operational control room, has R&D facilities.

10 But we can use as a learning tool.
11 So, kind of the thought is could we create two
12 or three regional, regionally placed
13 substations that would allow us to really
14 bring in, not just the technologies to that
15 space, but the policy side and people think
16 about what are the other socio-economic issues
17 surrounding that.

18 And really have a robust, and a
19 model for this, there are a couple of new hubs
20 in the last three years. The closest one if
21 the buildings hub in Philadelphia. You're
22 familiar with that, but a third of the money

1 actually went into non-building related
2 traditional technologies.

3 People studying impacts on trends
4 as people move to cities. Trends in
5 transportation, how it will affect buildings.
6 People's decision making kind of things. So
7 it's a very robust and a way of opening up and
8 making sure that we're not just looking at
9 this myopically and that kind of
10 consideration.

11 And we are -- so we hope to
12 develop over the next year, an idea of how
13 could we do this and is this really an area
14 where we can kind of bring it all together and
15 really be a test for all of that stuff.

16 So next steps, we're going to have
17 in November, we're going to have a vetting
18 meeting and invite 100, 120 people to talk
19 about this and to expand on it and try to
20 bring in, not just DOE viewpoint on this whole
21 thing.

22 And we would welcome your comment,

1 we would welcome your participation in part of
2 this. And in February we're planning also to
3 have one of the Daves talk about this kind of
4 thing at the joint NARUC meeting.

5 And ultimately lead to developing
6 this road map for DOE activities. And I will
7 stop there and take any questions. I'll
8 answer all your questions.

9 CHAIRMAN COWART: I just wanted to
10 say, are there clarifying questions just about
11 what Bill has said, because we're going to
12 have some responses and then discussion.

13 MR. PARKS: So anything --

14 CHAIRMAN COWART: I do have one
15 factual question, I suppose, on what you
16 presented. I didn't understand something
17 about the second slide, the blue arrows, that
18 one.

19 Because on the prior slide the
20 DOE's clean energy goals are stated, 80
21 percent clean energy by 2035, let's say. And
22 then, in the changing supply mix arrow, the

1 2035 mix doesn't look like that.

2 MR. PARKS: Well, there are two
3 different things and, again, we're -- this is
4 part of -- the point is to contrast. This is
5 what DOE said in the strategic plan.

6 This is a composite of a number of
7 different sources. And the point is that
8 there is not consistency across that. There's
9 a lot of different viewpoints about what that
10 solution set is, and that's the world that we
11 have to operate in, where we have those
12 uncertainties.

13 So they're not meant to be
14 consistent. Yes, sir.

15 MR. KELLIHER: If that's a
16 composite, I'm not aware of any projection
17 that envisions natural gas, electric
18 generation dropping by 50 percent, you know,
19 in terms of share.

20 MR. PARKS: Dropping by what
21 percent?

22 MR. KELLIHER: Well, you have a

1 range of ten to 20 percent. Okay, if you look
2 at 2009, 2035, look at natural gas share of
3 electric generation.

4 MR. PARKS: Yes.

5 MR. KELLIHER: The high in 2035,
6 is the current share. And I'm not sure many
7 people would agree with that, at least on the
8 high side.

9 MR. PARKS: I would agree, that's
10 probably going to be the most controversial
11 point of today.

12 MR. KELLIHER: Well, I think a
13 nuclear share is pretty big, too. So, anyway,
14 I realize no one is going to agree exactly on
15 that, but the natural gas one --

16 MR. PARKS: But I look forward to
17 the discussion on the natural gas.

18 MR. KELLIHER: Okay.

19 MR. PARKS: Anything else from a
20 clarifying standpoint? Yes, sir.

21 MR. VAN WELIE: Yes, I was curious
22 about the Smart Grid hub. When I looked at

1 the presentation I wasn't sure how to
2 interpret this phrase, because it was a new
3 concept to me.

4 So I wondered whether I should
5 just think of it as a smart substation or
6 should I think about it in the communications
7 sense as a, you know, the way you think about
8 a hub on a network, or was it supposed to be
9 both?

10 MR. PARKS: Well, it's supposed to
11 be both and a little bit ambiguous, only in
12 the sense of we're looking for feedback on
13 what should this be.

14 Is it sufficient to be a smart
15 substation or do we want to broaden it and how
16 should that be.

17 MR. VAN WELIE: I'll save the rest
18 for when I respond.

19 MR. PARKS: And, again, recognize
20 that it's building on what we know about Smart
21 Grid demonstrations that are out there today.
22 Okay. Thank you very much.

1 CHAIRMAN COWART: All right, thank
2 you, Bill. Before we launch into the
3 responses, we actually have -- we have another
4 visitor from the Department with us.

5 Hank Kenchington is the Deputy
6 Assistant Secretary in the Office of
7 Electricity for R&D, so this conversation
8 seems to be right up your alley. I wanted to
9 say hello to you.

10 And, so, let's begin with the
11 responses. And I think, Bob Curry, you're
12 first.

13 MR. CURRY: Yes, I was trying to
14 stop Joe from stepping on all our lines.
15 Because I'm the, as I noted earlier, the sole
16 State Commissioner standing here or sitting
17 here and I thank you for the opportunity to
18 respond.

19 I come to this august position on
20 this panel and the New York State as a
21 corporate transactional lawyer. I'm not from
22 the business.

1 My pretense to having any
2 engineering understanding whatsoever is I
3 represented as sort of Chief Counsel at a
4 shipyard in New Orleans for 25 years that
5 built vessels for whoever wanted to buy them.

6 Particularly the Navy during the
7 last decade or so. So, as we all know,
8 erecting steel is not a particularly difficult
9 task, so my engineering expertise is
10 accordingly quite limited.

11 The good news for lawyers in that
12 experience was that every program ended up in
13 some sort of adversarial fight. Either in
14 court, in arbitration or with the Department
15 of the Navy.

16 And I had the opportunity to
17 contrast dealing with the Department of Navy,
18 headquartered down the road here, at this
19 point, and at one time in Crystal City, where
20 a change order of a couple hundred million
21 dollars -- should it be closer -- a change
22 order of a couple of hundred million dollars

1 was not considered a real big deal. Certainly
2 it would never hit the papers, it was just
3 another change order.

4 Contrast that with a quandary I
5 got my shipyard into when it offered to build
6 a floating prison for the city of New York.
7 And as you take of from LaGuardia Airport, if
8 you look over on the Bronx side, those of you
9 who are on the wrong side of the plane, you
10 will see this squat gray and blue thing, and
11 that's a floating 800-bed prison, built to
12 American Bureau Shipping Standards, flagged as
13 a U.S. vessel.

14 A five million dollar change order
15 on that contract for the Department of
16 Corrections of the city of New York, with a
17 population of people who can't vote legally,
18 if they're in there for felonies, would hit
19 the front page of the Post or maybe the Daily
20 News.

21 So I bring to this discussion the
22 sensitivities born of that, born of being in

1 my position now, a professional pinata, where,
2 you know, people whack at us when things go
3 wrong until something breaks.

4 And also informed by the thoughts
5 of a guy named John Hofmeister, who some of
6 you may know, as formerly Chairman of Shell US
7 and President of the American Urban League,
8 and John created something called Citizens for
9 Affordable Energy.

10 It's a grassroots attempt to
11 control energy costs, et cetera, and he likes
12 to point out that there are in the
13 neighborhood of 20 federal agencies that
14 oversee power and energy, not electric power.
15 And almost an analogous number of committees
16 and subcommittees on the Hill. So change in
17 this area is tough. I want to say, in a
18 strong complimentary way, first and foremost,
19 this presentation is a very good attempt to
20 sympathize inherently irreconcilable views.

21 And since I am not that good at
22 engineering and I'm going to make some

1 comments about the technical side of this that
2 come from the staff, but, if they're wrong,
3 it's my fault because I can't construe them
4 correctly. So, let's start with that. New
5 York is ideologically in sync with the clean
6 energy goals. We're seeking clean energy
7 sources for the production of electricity and
8 the reduction of greenhouse gas emissions.

9 We're one of the founding members
10 of RGGI and a main driver in its establishment
11 and the pursuit of CO2 emissions. As a matter
12 of fact, RGGI is right across the hall from my
13 officer in New York City. New York has been
14 pursuing a policy called 45 by 15, which is
15 one of those complicated, back of the
16 envelope, press conference numbers that means
17 a 15 percent reduction in energy usage and
18 getting 30 percent of New York's electric
19 needs from renewable energy by 2015.

20 While the economic situation has
21 slowed our progress, New York is spending
22 almost a billion dollars a year on energy

1 efficiency and renewable incentives and is
2 very committed to reaching these goals.
3 Unlike some other states who are reconsidering
4 them at this point. The emphasis in the paper
5 on the development of utility scale energy
6 storage and decreasing the size and cost with
7 DC converter stations is where the focus
8 really needs to be.

9 A parochial observation from New
10 York City, there are very few available
11 transmission rights of way into New York City
12 area right now. Usually people say, well, we
13 can always go to the thruway or the -- there's
14 no room left in those places in New York.

15 So reliable compact energy storage
16 that can be sited throughout the city, would
17 allow folks in the city to take advantage of
18 wind and hydro at night, shipped in during a
19 lighter load and be taken out during peak load
20 hours. That's something we're very keen on.
21 On-site energy storage would allow optimum use
22 of the existing transmission system and avoid

1 new construction in an area where just getting
2 into New York is a four to five million dollar
3 a mile proposition. It's relatively
4 expensive.

5 Obviously the converter, the cost
6 of convertor stations and their large
7 footprint, limitations of the current
8 application of DC converter technology, so any
9 focus in investing further in pilot projects
10 in DC converters are very worthy pursuits.

11 The version of the grid appears to
12 be a little bit optimistic in some respects
13 and should be re-evaluated based on cost, time
14 and public perception constraints.

15 Again, being not from the
16 business, I look at almost everything that
17 comes before us at the New York Commission
18 from a dollars standpoint. I look for
19 endeavors in energy efficiency and renewables
20 for valuation measurement and verification.
21 I look for people to always give us ratepayer
22 impact on whatever is being proposed and I'm

1 encouraging the New York ISO, which so far is
2 a little bit tone-deaf on this, to do what the
3 Southwestern Power Pool does, which is to try
4 to attach some sort of ratepayer impact to,
5 even if it's very rough, to some of their
6 determinations.

7 So, on Page 2, the vision calls
8 for deployment of 26 million smart meters in
9 homes and businesses by 2013.

10 And I think, Bill, this goes back
11 to the question that Gordon asked. What so
12 you really intend by smart grid? I think I
13 can get much closer to your slide in the back
14 than your slide in the front, as far as that's
15 concerned.

16 Because the goal is really costly
17 and it's a significant burden on ratepayers.
18 It's highly unlikely, as we've considered this
19 in New York, that New York will be any part of
20 that 26 million in terms of homes. We're all
21 for the deployment of whatever people want
22 smart grid to mean, short of the distribution

1 system. When you get to this distribution
2 system it's just my view, too bloody expensive
3 to carry it forward. And much to their
4 chagrin, I imposed on Con Ed to get some
5 fairly sophisticated focus groups to look at
6 various issues. Including issues like how
7 much do people want to manage in New York City
8 now, and people who live in apartments. How
9 much do they really want to manage or be
10 bothered with, and the answer is not at all.
11 Just, you know, I'll pay it, I trust the bill,
12 which was a great relief to Con Ed. I trust
13 the bill and let's just keep moving.

14 There was no ratepayer interest
15 other than one guy who was retired, which I
16 will be very soon, with this attitude, who had
17 nothing else to do except manage his energy.
18 So, he was really an astounding individual
19 from Jamaica and his lilting voice made you
20 almost want to manage your energy, when you
21 listen to him.

22 The vision of doubling of nuclear

1 energy sources by 2035, I think is absolutely
2 the direction we have to go in. Again, being
3 new to the field, I tried to do some
4 historical research and understood the
5 dependency on any one fuel. I grew up in New
6 York where hearing the words, nuclear is too
7 cheap to meter.

8 I mean, you guys have all been
9 through this. I just am somewhat of a visitor
10 to this terrain and know that natural gas is
11 going to have its problems, but in my 40 year
12 career as a practicing lawyer, I've never seen
13 a more transformational event than the advent
14 of inexpensive shale gas proximate to very
15 eager markets.

16 So I don't share the view, Bill,
17 you articulated, that this is something we
18 have to look at on a 20-year, you know, or
19 maybe the 100 year flood plain, where things
20 -- his is something in my mind that's
21 transformational. Today Bloomberg had an
22 article about the Balken shale reverses, which

1 nobody ever heard of. I've been updated on
2 Utica, which is below the Marcellus. There
3 are a lot of very happy people waiting for New
4 York to open up, but Sonny has opened up
5 Pennsylvania so, you know, we'll get there at
6 some point.

7 But let's look at the doubling of
8 nuclear energy sources by 2035. Most useful
9 lives of energy, of nuclear plants, it's
10 roughly 60 years. Even with upgrades and
11 everything else.

12 So doubling our nuclear capacity
13 will required reconstruction of the existing
14 stations and then some, like doubling them.
15 That's a pretty significant financial
16 undertaking. You all in this Department are
17 keenly aware of the cost of building
18 replacement plants in states where generation
19 and distribution have been separated.

20 I tend to recall negotiations fell
21 apart with Constellation and EDF over terms.
22 Constellation, in my view, is just an

1 investment banker that stumbled into the
2 utility business. But that's just my own
3 personal point of view.

4 So you can always count on there
5 being difficult negotiations. But that's an
6 enormous ratepayer burden. I happened to
7 think it's worth it, but it's a place where
8 you sort of have to make some choices as to
9 what your back-up fuel is going to be.

10 The natural gas availability is
11 bountiful, I guess is the right word to use,
12 almost biblical in our neck of the woods in
13 New York. The trend over the last ten years
14 in our state, is that for every new generator
15 built, beyond those that have been incented by
16 renewable subsidies, every one has been fueled
17 by natural gas.

18 It's much more likely that natural
19 generation will continue to expand, much more
20 likely even than nuclear capacity because
21 we're going to have to go through some
22 significant political, perception and

1 financial trials before we can get ourselves
2 around to that.

3 The other obvious aspect of shale
4 gas -- the byproducts that could be any part
5 of the wet gas exercise is going to have other
6 significant benefits.

7 So, looking on to the division of
8 the grid, I think it should be tempered by the
9 realities facing electric industry. Our job,
10 as state commissioners, is safe and reliable
11 service at just and reasonable prices. So we
12 are not the people who ordinarily try to look
13 40 years down the road. We try to look, and
14 I think you all may be very keenly aware of
15 the fact the average term for a state
16 commissioner is 3.4 years.

17 They have a lot of turnover in
18 this job. They have good staffs, solid
19 people, clear thinking. They want the same
20 positive things that this group wants, and
21 that, Bill, that you articulated.

22 But we really need to look at the

1 aging infrastructure, RTOs. Say, it will cost
2 about 25 billion over the next 20 years to
3 just rebuild what we've got. The distribution
4 systems are changing, now that New York City
5 is trying to cut down on air pollution, all
6 the residential apartment buildings that
7 currently burn Number 4, Number 6 fuel oil,
8 have been mandated to change over to either
9 Number 2 or to natural gas.

10 Well, that takes up 60 percent of
11 the existing Con Ed distribution network.
12 Just that one event. So how are we going to
13 finance that? I asked Con Ed question and I
14 shouldn't, because they're going to want more
15 money from us, but we've got to do it
16 reasonably fast. This is an expensive, long-
17 term build out. This is just, you know, sort
18 of keep current and deal with the legal
19 concerns as we have right now, not to go
20 forward.

21 And we had to debate in our last
22 session, last Thursday, whether or not we

1 would continue that billion dollar subsidy for
2 energy-efficiency, the renewable portfolio
3 standard and new thinking in the energy
4 sector. And we decided we had to do that
5 because no one else was doing it.

6 And that leads me to another
7 awkward aspect of my presentation. And that
8 is that because of the stalemate within, I
9 guess, a radius of ten miles from here, right
10 now state public service commissions are
11 making a lot of the decisions vis-a-vis energy
12 policy in the United States. And, yes, we are
13 balkanized, there are 50 of us and you add
14 D.C. in, which we must, 51. It's just there
15 is division at every level.

16 The hardest part of a government
17 agency is to try to harness that to get the
18 best of it to understand that there is a lot
19 of parochialism that is just a natural
20 byproduct of it being a political system and
21 to get beyond it.

22 I'm sorry, I may be running a

1 little beyond my time, but the vision calls
2 for new economically driven transmission lines
3 to relieve congestion and to deliver renewable
4 energy. So, here's a factoid. Absent
5 focusing on congestion, New York City, which
6 seems to be every transmission developers holy
7 grail, because of how much money we pay for
8 electricity in New York City. New York City
9 has right now 137 percent of capacity covered
10 by in-city generation, 1-3-7 percent.

11 So, you go back to the no regrets
12 scenario that, again, fully agreed with that.
13 We have to consider, as a state, if the
14 decision is made to replace Indian Point, what
15 are we going to replace it with?

16 Well, there are a lot of
17 generators who say, let us build you a new
18 generator. Gordon was telling me about a
19 company up in his neck of the woods that spent
20 a billion dollars to be ready to burn natural
21 gas. And then, all of a sudden, we find that
22 in really constrained situations, I mean

1 politically constrained situations, some of
2 the congestion can be eliminated for not all
3 that much money.

4 There can be some north/south
5 transmission refined, enhanced, bettered, for
6 all not that much money. Do we really need
7 2,000 megawatts from Indian Point or is it
8 more likely we'll need 1,100? Maybe, Bill,
9 some of the experiment that you're focusing
10 on, we're going to have to go through fairly
11 soon, because we are the backstop at the
12 Public Service Commission to worry about this
13 stuff because both politically and
14 practically, we're the ones who can basically
15 encourage people to do it, and then make the
16 ratepayers for it.

17 So, another observation, this is
18 more from staff than from me. Development of
19 energy storage devices is really the first and
20 most positive thing that will work in our
21 state. All congestion is not bad. Because of
22 the costs of new transmission construction

1 along the east coast and to the east coast,
2 what looks like high levels of congestion in
3 some places is actually economic when compared
4 to the cost of system upgrades.

5 The new transmission must be
6 justified and sited wisely because right away
7 in our neck of the woods is a scarce commodity
8 that uses up all sorts of environmental
9 tolerance as well as environmental resources.

10 Going back to the themes in New
11 York that I touched on. The availability of
12 Marcellus gas and Indian Point. Cynics who
13 write for the New York Post, and maybe for the
14 Washington Post, too, but definitely for the
15 New York Post, point out that one thing is
16 appreciated by the environmental movement and
17 the other is scorned by the environmental
18 movement.

19 But, nevertheless, somehow, in
20 state government those two things are moving in
21 tandem. So, as I say, cynics may observe that
22 there's a tradeoff going on and Dr. Faust is

1 cutting a bargain out here someplace and we're
2 going to see Indian Point and Marcellus sort
3 of move in lockstep.

4 But I should hasten to say that
5 I'm not even speaking for myself on this, I'm
6 speaking for the New York Post. The
7 recommendation in the vision is to pursue the
8 no regrets, high value facilities, that's
9 really where we'd like to see things come out.

10 Now a couple of detail things that
11 those of you who -- just tolerate me on this
12 because I'm going to read it straight.

13 On advance modeling on Page 13, on
14 N11 contingency analysis, our staff thinks is
15 already mandatory in the bulk electric system
16 under NERC. Also, they view the current
17 electrical models do reflect reality. The
18 planning models for reliability purposes are
19 genuinely within about three percent accuracy,
20 but the area where modeling is imprecise and
21 inaccurate is in economic planning, thanks
22 again to the economists, of course.

1 And that's mainly due to the
2 complexity and difficulty in forecasting the
3 market parameters. But the hardest thing for
4 our staff to take, and I've got a lot of
5 experience in this town because of having to
6 deal with the Navy for so many years. And I
7 didn't take it askance, but the relationship
8 with the local regulators has to be a
9 dialogue. And, to a certain extent, some of
10 the slides tend to look like, well, we're
11 going, we're from the federal government and
12 we're here to help you.

13 I know that that is not your
14 style, I know that's not where you're coming
15 from. But reading it cold, which of course my
16 colleagues did, after seeing that the -- they
17 need to be sort of reached out to. Which is
18 not an easy thing to do from here, I
19 understand that. But when you get to your
20 institutional complexities slide, it looks
21 like there are all these folks running around,
22 they don't really know what they're up to, and

1 we need a federal backstop siting authority if
2 for no other reason than to scare people into
3 doing the right thing.

4 Now those of you who have had
5 experience in environmental mediation
6 understand very well what the phrase is, "and
7 if you don't get this cleaned up, this will
8 become a Superfund site."

9 What that means is the federal
10 government is going to come in, through the
11 EPA, and they're going to spend whatever of
12 your money they want to spend, to help you
13 clean up that site.

14 Nothing is more useful in New York
15 state than suggest that a manufactured gas
16 site might be a Superfund site, and all of a
17 sudden things start moving like crazy. So,
18 that may be your intent, was to provide a
19 weapon to encourage people to do the right
20 thing, faster rather than slower, that's the
21 benign view of it.

22 But our staff was concerned that

1 you might now have that view, so they wanted
2 to point out -- and, again, Sonny, I might be
3 stepping on your lines -- that in the PJM
4 TrAIL line that took basically three years
5 from adoption by the PJM Planning folks to in
6 service implementation for a 345kV line,
7 through three states.

8 Now -- 500kV. So, that's what our
9 staff notes. So, final couple of points. You
10 do mention on Pages 7 and 8, the need for
11 codes and standards. I'd like to say that in
12 New York, we've made lots of mistakes and the
13 rest of the country has learned from them.
14 And now California is starting to overtake us,
15 but the one thing that California did do
16 right, is that it got the codes and standards
17 stuff down pretty well. So, to the extent
18 that you can think of ways to encourage and
19 cajole and possibly force this aspect on a
20 model standard, I don't know enough about the
21 detail of this, but how you get to a model
22 implementation, that will really, I think,

1 move things along.

2 And keep in mind that states, and
3 particularly staff, don't want to be seen as
4 a barrier to change and innovation and is --
5 might be less in need of education, than you
6 know if you get a chance to interact with
7 them.

8 And vis-a-vis New York, at least,
9 I'd be happy to provide the appropriate
10 introductions, get you to the right people who
11 are eager to contribute in a positive and
12 effective way, just like all of us here are
13 set to do that.

14 I guess the final point I would
15 make, which goes back to the difficulty of
16 actually getting stuff done, is -- and also
17 you now have Lauren Azar here to help you get
18 the understanding, sort of from a
19 Commissioner's perspective.

20 But I was a General Counsel for about 15
21 years, and afterwards joined a law firm that
22 was given the task of working on the Iroquois

1 Pipeline, which was the first major Canadian
2 gas to New England/New York operation. It was
3 sponsored, at that point, by TransCanada and
4 Brooklyn Union Gas Company.

5 Now, I joined the law firm that
6 was pushing this along and they had a big map
7 in the war room as to where this line was
8 going to go. And I said, you know, you guys
9 really think you can pull this off? These
10 were areas of New York where I knew various,
11 intensely wealthy people from New York had
12 their second or third or fourth home, whatever
13 it was at the time. It wasn't quite as bad as
14 it is now, so maybe it was only their second
15 home.

16 And we had -- Federal Power Act
17 did this under national authority, no problem,
18 we're going to go right through there. I
19 said, well, do you see this space here? I
20 think Dr. Joyce Brothers, who those of you
21 may remember from the real old days, I think
22 she has a place there. And there's nothing

1 she'd like more to do than to show her
2 neighbors that she actually has some clout and
3 she's going to protect them from the intrusion
4 of this nasty line.

5 Now, of course, I was new to the
6 law firm game and the lawyers thought this was
7 great. We're going to litigate this for
8 years. But, from a practical standpoint, it
9 did take three or four extra years to get this
10 done. Because notwithstanding the draconian,
11 we can do this, we've got the right on a
12 national emergency, whatever the right
13 phraseology is, apologies to Joe, who probably
14 knows exactly what the right phraseology is.

15 It don't work that way. And we
16 are in a difficult time where even with all of
17 us pulling on the oars in the same direction,
18 we may not get to where we need to go. But
19 we're trying to get that framed right. I
20 think essentially this is a really good
21 approach. Where you are, there lots of tweaks
22 that I can get into in more detail, but thank

1 you for the effort and thank you for letting
2 me go first so that my ignorance is not too
3 well displayed. Thank you.

4 MR. PARKS: If I would just pick
5 out a few of those to respond to. One, I
6 though those were very constructive comments,
7 I appreciate greatly. I thought they were
8 well thought out.

9 From my viewpoint let me reassure
10 your staff that it wasn't intended to say
11 federal government is coming in, they're going
12 to solve all your problems.

13 MR. CURRY: No, no, I understand
14 that. I understand.

15 MR. PARKS: It's important for me
16 because I philosophically believe it's
17 partnerships at all levels that make these
18 things really happen, at the end of the day.
19 And I've had the pleasure, for a couple of
20 decades, of working with PFCs and am pleased
21 to do so. Thank you again for that.

22 And I do want to touch on this

1 slide for a minute, because I think, Joe, your
2 point was really, really good. We did not
3 band necessarily natural gas well enough. We
4 will look at that, in particular, that one.
5 Again, this was a composite of a lot of
6 things. I don't want -- we are not advocating
7 single solution set in these slides. I want
8 to make sure that people understood that
9 completely.

10 MR. CURRY: Let me return to that
11 and just say that I disagree with your
12 premise. I disagree with the premise that it
13 should be sort of an average or something like
14 that.

15 MR. PARKS: I was going to go
16 there. That it's, how then, let me turn it
17 around. How could we get into looking at
18 either a couple of scenarios or the kind --

19 MR. CURRY: Yes.

20 MR. PARKS: -- things that would -
21 - that you would find that people would agree
22 enough on to make use of it. Because that's

1 the issue in looking at scenarios.

2 MR. CURRY: I think that may come
3 out with wiser heads than mine in a later
4 discussion. But one of the difficulties for
5 people who read volumes and volumes of
6 material is that they hit something like this,
7 right up front. It provides a level of static
8 that discourages you from pursuing some of the
9 more effective, efficient and detailed points
10 you make later. Because it's so contrary both
11 to rational approach and what has evolved into
12 a visceral reaction, that it just gets you the
13 wrong way.

14 And I think you have to look at
15 significant growth in gas and a hopeful
16 scenario of significant growth in nuclear.

17 MR. PARKS: Okay, thank you.
18 Roger, you had --

19 MR. DUNCAN: Well, my suggestion
20 is -- I don't have a methodology, but to go to
21 his point, recent reports from the IEA on the
22 golden age of gas and of shale and some of the

1 big names that people normally look to future
2 projections, pretty much seem in consensus as
3 far as the rise of gas and no one I think is
4 anymore projecting 40 percent nuclear, in that
5 amount of time either.

6 And so I don't know what the
7 consensus is of the 40, but to the lay public
8 that's in the field, these are the big
9 headlines that seem pretty much in agreement.

10 MR. PARKS: We could take a
11 different approach to this entirely. Let me
12 just -- and this maybe comes a little bit from
13 myself. We intentionally took some 2001 data
14 and built on some of that, because we did not
15 want to overemphasize the immediate.

16 And my point in this is having
17 done this for 30 some years in this space, EIA
18 or IEA and us have all been wrong in their
19 predictions. I guarantee that is a consistent
20 thing.

21 And, so my only caution and,
22 again, open to change, is not to get too

1 caught up in the absolute immediate. Because,
2 again, the trend three years ago was a
3 different discussion than it is today. And I
4 want to make sure that we don't get too caught
5 up. And, again, having gone through the
6 natural gas public, I understand that we're at
7 a magnitude that we're talking, but there was
8 a lot of stranded assets associated with the
9 over-building out in the '90s or gas turbines
10 and gas equipment relative to a balanced, more
11 balanced approach of the long-term civilian
12 planning.

13 And so I would just ask that we --
14 how do we, you know, look for ways to put all
15 that together from a perspective, and not just
16 get caught in a short-term immediate view of
17 this is what we're seeing today.

18 CHAIRMAN COWART: All right, I
19 already -- I see that we're about to launch a
20 really great dialogue, which is exactly what
21 we want to have happen this afternoon.

22 I also see, looking at the clock,

1 that we are set for a break of just a few
2 minutes now. And I can announce that there
3 are refreshments for EAC members in the
4 adjoining room.

5 And just -- we had a 15 minute
6 break scheduled, I bet you it will be 15
7 minutes, so let's come back at 20 before the
8 hour and we'll hear from different respondents
9 and we'll continue this conversation, thank
10 you.

11 (Whereupon, the above-entitled
12 matter went off the record at 3:23 p.m., and
13 resumed at 3:43 p.m.)

14 CHAIRMAN COWART: We've had the
15 good fortune to have a series of planned,
16 thoughtful responses to Bill Parks'
17 presentation. And we need to hear from Mike
18 Heyeck, Sonny Popowsky and Gordon van Welie,
19 so what I'd like to do is move us through, if
20 you can remember your comments, let's bring
21 them up later.

22 And what I'd like to do is move on

1 and hear from the other Respondents. So,
2 Mike, I think you're up next.

3 MR. HEYECK: Thank you. I also
4 want to congratulate Bill Parks on putting
5 together, I would say it's a great starting
6 point, but that's, it's actually more than
7 that.

8 And giving me the opportunity to
9 say something about it. I've been in
10 transmission for about 35 years. I had a
11 stint in finance as well.

12 I love transmission, I happen to
13 be the few that like to look at transmission
14 towers. Not necessarily distribution lines,
15 but transmission towers are pretty, actually.

16 MR. CURRY: We had one in the
17 Mohawk River during the last storm, so you
18 would have enjoyed that a lot.

19 MR. HEYECK: I'd like to start
20 with a couple of comments about the industry
21 construct. First of all, we are, we are so
22 risk-averse that we will boldly go where

1 everyone has gone before.

2 And that's a statement used by
3 many in the industry. We spend so little in
4 R&D. We have so many regulators. We have so
5 many decision makers, so many people watching
6 over us.

7 We have about 3,000 players, if
8 you include co-ops and municipals. It's a
9 construct that can hardly develop the next
10 pharmaceutical dream that would avoid
11 someone's operation.

12 So it's a construct that has
13 created the likes of EPRI, and actually has
14 created the likes of the Department of Energy.
15 Because the energy industry is so fractured
16 into many different sectors and because the
17 electric industry is as well, that began that
18 construct.

19 And I don't want to lose sight of
20 that. I would really like to have, one of the
21 major comments I have is to make sure that the
22 Department of Energy's plan and the EPRI plan

1 are linked together.

2 The other thing I wanted to get to
3 is you have, being here 35 years and Dave
4 Nevius and I know Thomas Edison personally.
5 I had a physics professor that said never
6 believe a J-curve. And a J-curve is
7 extrapolations. We in the industry, we in the
8 world, simply extrapolate today and believe
9 that today will be a little bit different than
10 tomorrow, but not much.

11 When I was growing up we thought
12 about flying cars. And if you know, if you're
13 as old as me and know that, you know the
14 flying cars had fins. So they extrapolated a
15 future based on what they knew today.

16 And I have a feeling that's what
17 we're going here. We're extrapolating a
18 future. And so we need to know what the
19 discontinuities are going to be out there.

20 One discontinuity I think that's
21 going to be big, is we are largely a
22 centralized way of doing things. We generate

1 electricity, we transmit it and we distribute
2 it.

3 There is going to be a move to
4 decentralization. Where that is in the
5 spectrum, we do not know. But think about
6 this, will the 21st century customer accept
7 120 minutes of outages, momentaries?

8 Will they accept that? Or will
9 they devise systems, because of the last
10 outage to back up the electric company. And
11 when does backing up the electric company
12 become their primary source of electricity.

13 And those are, that's the dis-
14 continuity I think, and you can talk about
15 micro-grids, as well. Community energy
16 storage, a storage battery in the backyard
17 that looks like what I have today as a heat
18 pump, in the size of it. Solar-powered and so
19 on. So if you take a look at that spectrum,
20 I happen to believe in the next 20 or 30
21 years, we're not going to be fully
22 decentralized.

1 There's going to be some happy
2 medium in the middle. So what will the 21st
3 century customer want? And I really think
4 that's the way we have to look at these
5 slides.

6 What will they desire? And it
7 isn't, you don't have to go too far in looking
8 at these devices. And, in fact, this is an
9 old device. With iPads and iPhones and i-
10 anythings out there.

11 To me the three pillars of the
12 grid itself are the grid -- the physical
13 assets -- real-time control and someone
14 tending to the assets.

15 That's how I look at the assets.
16 But, again, if I tell you, that's
17 transmission. Think about what the 21st
18 century customer wants. What are going to be
19 the drivers of the change in the industry,
20 I'll just say from an organic approach
21 starting out and then the discontinuity.

22 We are going to replace aging

1 infrastructure. We have about, if I
2 guesstimated, about a third of the assets in
3 the United States or at or near life, and are
4 going to be changed out.

5 Are we going to replace it in
6 kind, or are we going to replace it with
7 something that's more efficient, more secure,
8 better use of right-of-way and so on.

9 I'll give you an idea of just
10 efficiency. For transmission and
11 distribution, we waste every year 350 billion
12 kilowatt-hours in delivery, 350 billion
13 kilowatt-hours of delivery.

14 And, some of that actually is
15 wasted, we have so much, we have high-tech
16 devices cooled by low-tech equipment, lighted
17 by low-tech equipment.

18 And I think Con Ed and TVA, I
19 believe, have gone through an experimental,
20 through an EPRI Transmission Efficiency
21 Project, to look at how much we can save by
22 just changing out the equipment we already

1 have.

2 So efficiency is very important as
3 we change out. And where the DOE can be very
4 instrumental, particularly in security, we'll
5 talk about that tomorrow, is providing some
6 standards out there by which folks can become
7 efficient.

8 Manufacturers are not going to
9 help us get there. We've been beating on them
10 and they're used to providing us the lowest
11 cost equipment possible. Well the lowest cost
12 equipment possible, if you include the energy
13 loss over 40 years, is actually higher cost.

14 The second point in drivers is
15 fuel rationalization. We all can think about
16 gas, are we going to go modular, nuclear?
17 What's wind going to do? What's solar going
18 to do? But I also want you to think about the
19 third point in the drivers and it's a 21st
20 century customer.

21 What are they going to do when
22 they don't want the outages anymore. What are

1 they going to do? Some of the boundary
2 conditions, I mentioned one already.

3 That there is a body of knowledge
4 out there called EPRI that can be leveraged.
5 EPRI has done a good job. In fact, the
6 process by which they came up with Prism is
7 really, I think, the process by which might be
8 instrumental to the DOE to come up with the
9 future of the grid, or the vision of the
10 future of the grid. We also need to recognize
11 there's a boundary between the utility and
12 competition. And that boundary is not going
13 to be where we think it is.

14 And I, you know, we think about
15 the meter. But where is the boundary going to
16 be between the utility and competition. And
17 if the boundary moves, you incent a different
18 type of R&D profile that will yield probably
19 something better than we have today.

20 The other boundary is between the
21 Department of Energy and the manufacturer. I
22 do believe the manufacturers have to be

1 pushed, but they're also market animals and
2 they will develop the better technology.

3 We will -- some examples. I
4 mentioned to somebody today that we're
5 replacing our 765 kV equipment, and we pushed
6 the manufacturers to quote more efficient
7 equipment, using electricity prices that are
8 double what they are today to justify those
9 costs. The voltage source converters or the
10 HVDC stations today are very lossy.

11 Not the conventional ones. The
12 conventional only lose about one-half a
13 percent. The newer ones are about one to one
14 and half percent each station. That's a lot
15 of losses.

16 The average life of those stations
17 are not the 40 year transformer. They are
18 something in the order of 20 years. There's
19 got to be a paradigm shift in the way we look
20 at these devices.

21 We have to push the manufacturer
22 to become more efficient, to make these more

1 modular so they can separate out the 40 year
2 old life equipment, from the life of, from the
3 equipment that's plug and play.

4 So recognize that there is a
5 boundary there, but I do believe the
6 manufacturer is also on an extrapolation that
7 could be pushed real hard.

8 Now, nothing against HVDC, I
9 really do believe that the line itself is
10 much, the lines are much more efficient.

11 Another game changer in the HVDC
12 space is the DC breaker. Once a DC circuit
13 breaker is developed, we will not be stuck
14 with the paradigm of going to AC and back to
15 DC again.

16 ABB, there's a paper out there,
17 ABB is developing a solid state approach to
18 it, rather than the standard interrupts of
19 current.

20 I do believe that that's going to
21 be a game-changer. And when we change out the
22 aging assets and we include better use of

1 right-of-way, HVDC will probably be a bigger
2 player.

3 I do believe technically we can
4 solve just about anything. I mean we can talk
5 about how tough it is to integrate renewables,
6 well, it's really not that tough, if you
7 really focus on it technically.

8 I do believe we need larger
9 control areas. The days of small control
10 areas and small balancing authorities are not
11 going to work and I believe we saw it in the
12 southwest United States.

13 There were four balancing
14 authorities in the area that had the outage,
15 and each could not see the other. I think
16 we're going to have to have larger balancing
17 authorities to be able to deal with the market
18 issues in a law of large numbers approach.
19 And then deal with what folks call
20 intermittency, which I think technology is
21 going to solve that problem.

22 Wide area monitoring and control.

1 I love the fact that we're putting
2 synchrophasors out there like ice cream. It's
3 fantastic, we can do that, we were talking
4 about it since before the PTC, so I'm glad
5 we're doing it.

6 But the infrastructure behind the
7 PMUs needs to be upgraded. Data collection,
8 data visualization needs to be advanced in
9 order to have better wide area monitoring and
10 control.

11 And, oh, by the way, once the
12 synchrophasor becomes more than a device that
13 gives you forensics, cyber-security gets
14 wrapped around it.

15 And I believe cyber-security will
16 be stymieing technology development if we
17 don't crack that nut.

18 Market design. I really think we
19 can solve market design issues, okay. The
20 problem is implementing it. And with decision
21 makers comprising 50 states and the feds and
22 anyone else who wants to intervene, including

1 all the stakeholders, it's going to be hard to
2 implement.

3 I just believe technically we can
4 do all that we say that we can do. The last
5 and this maybe repetitive, is look for the
6 discontinuities which are the game-changers.

7 And I mentioned the 21st century
8 customer about four times. I think
9 distributed generation and micro-grids are
10 going to be game-changers.

11 I mentioned the DC breaker.
12 Superconducting material and not in a way in
13 which there's a 300-mile superconducting pipe
14 of something.

15 But if you use superconducting
16 materials in wind turbines or other devices,
17 you can get much more efficiency and maybe we
18 can get the 15 megawatt wind turbine developed
19 as a result.

20 There's a lot of opportunities in
21 these game-changers that you can't see yet.
22 We didn't see the iPad ten years ago. So, I'm

1 going to stop there. Thank you.

2 CHAIRMAN COWART: Thank you very
3 much. Maybe we should just go ahead and hear
4 from the other Respondents and then discuss
5 it. Sonny.

6 MR. POPOWSKY: Thanks, Rich and
7 thanks to the Committee for giving me an
8 opportunity to give the, try to give a
9 consumers perspective on the DOE vision of the
10 future electricity grid.

11 Before getting into the substance,
12 though, I want to also thank DOE for
13 recognizing the importance of considering the
14 consumer perspective in a whole gamut of
15 issues that have come up in the last couple of
16 years.

17 I think I'm the first consumer
18 advocate to serve on this committee. But much
19 more important, I'd say that the current
20 leadership at DOE has consistently reached out
21 to consumer representatives for views on
22 issues ranging from smart grid to

1 interconnection wide planning, transmission
2 siting and a host of issues.

3 So I do want to take this
4 opportunity to publicly thank folks like Pat
5 Hoffman and David Meyer, Larry Mansueti, for
6 making sure that the views of electricity or
7 energy consumers are heard.

8 So with that premise, I'm sorry,
9 with that preface, I want to start out by
10 repeating a comment that was actually made by
11 Commissioner Curry's colleague, Gary Brown,
12 who is the New York Public Service
13 Commissioner Chairman, at a meeting last month
14 in New York.

15 He was quoted as pointing out that
16 approximately one million electricity
17 consumers in New York, in New York state, are
18 currently more than 60 days in arrears on
19 their electric bills.

20 That means they haven't paid their
21 bill this month, haven't paid their bill last
22 month. They're behind, they're 60 days, over

1 a million in New York alone.

2 And therefore in danger of losing
3 this essential, life-sustaining service. At
4 the same time, at least I believe, that the
5 overwhelming, scientific evidence tells us
6 that we, as a nation, need to change the way
7 in which we produce electricity, in order to
8 avoid major environmental harms.

9 And some of those changes will be
10 costly. They may increase the cost of
11 electricity significantly and therefore make
12 it even more difficult for even more millions
13 of customers to pay their monthly bills.

14 So from my perspective, the great
15 challenge for this industry, and the great
16 challenge for our nation is to figure out how
17 to ensure universal availability of reliable
18 and affordable electricity service in an
19 environmentally sustainable manner.

20 Now I think that challenge, the
21 way I phrase it, is different, maybe slightly
22 different in language, but I don't think it's

1 different in intent, from the position that
2 was set forth by Bill, and is set forth in the
3 DOE vision.

4 And if I could quote that, it's to
5 enable a seamless, cost-effective electricity
6 system from generation to end use capable of
7 meeting the clean energy demands and capacity
8 requirements of this century.

9 And I think Bill, this afternoon,
10 added the phrase without breaking the bank.
11 And I would echo that, as well. So, now in
12 terms of the vision that was set out, I think
13 when we talk about the grid, at least I
14 traditionally think of it as everything
15 between the generator and the end user.

16 It's the, at least that's my
17 traditional interpretation of the grid, that
18 it's the wires and the facilities that lie
19 between the generation at one end and the end
20 user at the other.

21 And looking at this vision in that
22 regard, I really have no problem with it,

1 certainly with the technical recommendations
2 for the transmission and distribution system
3 that make up the bulk of this report.

4 And I agree with Mike that we have
5 aging infrastructure and it needs to be
6 replaced. And we really ought to be replacing
7 it with the most cost-effective, advanced
8 methodologies to get the cleanest, lowest cost
9 power from the generators to the end users.

10 And we have to have the
11 appropriate technology in place to allow
12 consumers to receive the greatest possible
13 benefit from the grid.

14 I also think that the document
15 that was presented today, gets it about right.
16 If you look at the actual language when it
17 talks about, when it talks about consumers.
18 And I'm thinking in particular of residential
19 consumers.

20 And it talks about consumer
21 participation in the smart grid initiatives.
22 I'll give a couple of quotes. In Slide 4, the

1 report talks about, quote, allowing consumer
2 participation as desired.

3 In Slide 5, it talks about
4 enabling customer participation into
5 electricity markets and demand response.

6 And then on Slide 16, it talks
7 about the goal of allowing 100 percent
8 customer participation and choice. Now I have
9 to think, or I think that the choice of those
10 words allow, enable, as desired, was
11 intentional on DOE's part. In my mind, those
12 words are in stark contrast to words like
13 require or mandate or even assume.

14 That is, the DOE vision, as I read
15 it, does not assume that all or even most
16 customers, again residential customers in
17 particular, will choose to become active
18 participants in retail electricity markets or
19 time of use rates or peak pricing programs.

20 And the vision does not require
21 such participation. Rather, and correctly I
22 believe, DOE I think is seeking to make such

1 programs available to the extent that
2 customers desire or wish to participate.

3 I had a conversation with Tom
4 Sloan on this issue, and I think it was at our
5 first meeting of this group. And he said to
6 me, that he didn't think that his 85-year-old
7 mother was particularly interested in learning
8 how to use time of use electricity pricing.

9 My response to him was, you know,
10 neither are my 30-year-old kids. So, and to
11 follow up on Commissioner Curry's point, I
12 spend a lot of my time talking to, speaking at
13 AARP meetings and in church basements and
14 consumer affairs.

15 And I haven't seen a lot of
16 interest in many of the residential pricing
17 services that the smart grid may have to
18 offer.

19 I realize people haven't been
20 exposed to them, but even where they are
21 exposed to them, I haven't see that great
22 interest.

1 And I'm sorry the former
2 Commissioners Grueneich and Smitherman aren't
3 here, because I think they may have more to
4 say about what's happened in California and
5 Texas.

6 But at least my experience has
7 been more like Commissioner Curry's in New
8 York, regarding the level of the desire of
9 consumers to change their lives in any, well
10 to really change their electricity patterns to
11 really take advantage of some of these
12 technologies.

13 I haven't really perceived any,
14 felt need, I guess is the expression. A felt
15 need of consumers that would be filled by
16 smart meters and some of the dynamic pricing
17 programs. I think unlike some of the things
18 we've seen, I mean many of the things we've
19 seen in the communications, tele-communication
20 industry that make our lives, have made our
21 lives richer and simpler, I don't know that
22 smart meters make our lives richer or simpler.

1 If anything, they tend to make our lives a
2 little more complicated and I think they are
3 valuable for many consumers.

4 Many consumers will be able to
5 save money and many won't. Many will not be
6 able to change their electricity usage
7 patterns and benefit.

8 And that, again, is why I think
9 it's so important that they, I come back to
10 the language used in the DOE report. This is
11 something that should be, we should be
12 enabling. We should be allowing. We should
13 be making these programs and technologies
14 available to consumers, but we shouldn't
15 necessarily rely on consumer participation in
16 these programs in order to justify them.

17 I think there are many and we're
18 doing it in Pennsylvania. There are many
19 operational and technical benefits to the
20 smart grid, including smart meters.

21 And to the extent that consumers
22 can participate in dynamic pricing and other

1 programs, those are additional benefits that
2 I think can be produced by these technological
3 advancements.

4 But, again, I don't think we
5 should rely on or assume that all consumers
6 will necessarily want to participate. Now in
7 terms of the national goals, at the consumer
8 end of the grid, I personally would prefer to
9 see a greater emphasis on energy efficiency.

10 That is things like appliance
11 efficiency standards, building code standards
12 and conservation programs for individual
13 customers.

14 Getting back to the DOE vision of
15 a cost-effective electricity system capable of
16 meeting the clean energy demands and capacity
17 requirements of the century, I'm sure that
18 folks like Rich Cowart, could spend the next
19 day and a half telling us how it is that
20 energy efficiency is probably, or almost
21 certainly, the cheapest first step, cheapest,
22 best step toward achieving that goal.

1 And I tend to agree with Rich.

2 And that's not a criticism of this report,
3 because this report really is focused on the
4 grid. I know that Pat and her colleagues have
5 done tremendous work on energy efficiency.

6 And I'm only encouraging the
7 people, the readers of the report, to look at
8 those additional materials from DOE that
9 really focus on energy efficiency, which I
10 really think probably is the best place to get
11 the greatest bang for the buck. With respect
12 to the other end of the grid, the generation
13 sector, you know, I do note that Slide 2 talks
14 about a goal of 80 percent of electricity,
15 American electricity will come from clean
16 energy resources.

17 Again, this report doesn't, isn't
18 designed, I don't think, to tell us how we're
19 going to get there. And it really doesn't,
20 and I'm sure intentionally it doesn't define
21 clean energy resources.

22 And it also goes on and it says

1 we're talking about, we're a goal of 83
2 percent reduction in greenhouse gas emissions.

3 Again, this report doesn't tell us
4 how to get there, but certainly we're going to
5 need fundamental changes in the electric
6 generation mix to reach those goals.

7 I do think, to come back to the
8 point that's been made by a couple of folks,
9 on natural gas, I agree with Commissioner
10 Curry and I really have never seen, I really
11 have never seen anything quite like what we're
12 seeing on the gas front.

13 And I agree, Bill, that we've seen
14 these bubbles come and go, but again,
15 certainly in terms of our planning for the
16 future I think it, as Joe Kelliher pointed
17 out, we really can't, it's not logical to
18 assume that there would be a decline in
19 natural gas generation, as set forth in that
20 one slide.

21 I realize that's just a range but
22 certainly I would not see a decline and I

1 would expect a growth in natural gas
2 generation.

3 And the reason that's important
4 for purposes of this report, I think, it's for
5 the reasons that have been raised by
6 Commissioner or former Chairman Smitherman, in
7 our transmission subcommittee, which is the
8 inter-relationship between the electric grid
9 and the interstate pipelines.

10 And to the extent that we are more
11 reliant on natural gas in the near-term
12 future, than that has to be taken into
13 account. Not just in the interstate pipeline,
14 natural gas pipeline industry, but also in the
15 electric industry.

16 And just one last point. I do
17 have a modest disagreement, I think, with one
18 of the conclusions in the report. If you go
19 back to the, there was, in one of the slides
20 that, again, that Commissioner Curry mentioned
21 about institutional complexity and all the
22 players.

1 There's a statement in there that
2 says that the multitude of stakeholders and
3 key actors are barriers to change and
4 innovation, due to risk aversion and extensive
5 process of gaining buy-in.

6 I would argue that at least in
7 some respects, certainly at least for now, the
8 multitude of stakeholders and actors can also
9 be a source of innovation. And that, again,
10 as Commissioner Curry pointed out, not
11 everything will come, obviously not everything
12 is going to come from the national level down.

13 But a lot of good ideas are going
14 to come from the state level and the regional
15 level up. I mean being, I've sort of grown up
16 in PJM and I'm confident that many of the
17 innovations that came out of PJM have been
18 adopted in other parts of the country.

19 I'm sure Gordon can give similar
20 examples from New England. So, in any case,
21 I would think, you know, a famous quote from
22 Justice Brandeis, that the states are the

1 laboratories of democracy.

2 I think the states and regions in
3 the electricity field can also be the
4 laboratories of innovation. So, with that
5 modest disagreement, I'll close and look
6 forward for the rest of the comments.

7 MR. PARKS: If I could just
8 comment on that last one very quickly. I
9 actually agree with you and we probably ought
10 to change how we, I agree that that innovation
11 can come.

12 But how to balance, I need to
13 think about how to balance that concept with
14 the idea of, that there is, there are a lot of
15 different players. And they are not directly
16 aligned.

17 And so a balance of those
18 concepts, we need help on that, and appreciate
19 it.

20 MR. POPOWSKY: And we all have to
21 learn to talk to each other, too, and
22 communicate with each other. And that's one

1 of the things I think, again, DOE is doing
2 through the inter-connection planning, et
3 cetera.

4 CHAIRMAN COWART: And now Gordon.

5 MR. VAN WELIE: Thanks, Ralph.
6 Bill, I must compliment you on taking on this
7 ambitious challenge. You were already given
8 a challenge by the Secretary to do, put
9 together this great vision.

10 And let me say up front, it's
11 always easy to be on the critiquing side of
12 this equation. The creating side is a lot
13 harder. So once you put out a straw and
14 people start shooting holes in it, I've been
15 in that position.

16 So I understand quite well what
17 that means. It's a very dense presentation.
18 It raised many questions for me, so perhaps,
19 in due course of time, in the off-line, we can
20 sort of spend time, talking about some of the
21 aspects.

22 But I try to focus my comments in

1 a couple of areas. I do think that it is
2 useful to create a framework like this because
3 the true value is that it stimulates the
4 discussion, just like it is stimulating the
5 discussion today.

6 So you have to start somewhere and
7 I think you've done a good job. I think
8 teeing up some of the key issues. I do have
9 some areas where I may, to use Sonny's phrase,
10 modestly disagree with you.

11 I did stumble across the natural
12 gas statistics in there. I won't repeat
13 everything that's already been said, but I
14 would like to make a final point on the gas
15 issue, which is the operational issues, in
16 terms of in terms of those interdependencies,
17 not just sort of a high level interdependency
18 that I'm concerned about, it's at an
19 operational level I think there's going to be
20 ultimately require investment in observability
21 between the systems.

22 It was interesting, when I was in

1 a conference earlier this week with the system
2 operators of Portugal and Spain, both of which
3 are very heavy, if you look at their mix, sort
4 of gas, wind and in those countries there's a
5 much tighter coordination between the
6 operation of the gas pipeline infrastructure
7 and the electric infrastructure.

8 My perception, at least, is that
9 as we see coal decline, at least conventional
10 coal, that gap is going to be filled by
11 natural gas. And so this interdependency is
12 going to become more and more of an issue.

13 In some ways New England is the
14 canary in the coal mine. So we've learned the
15 hard way that this is an issue that needs to
16 be solved.

17 My second point really was
18 triggered by the word holistically, in a
19 couple of places in the slide. And I think it
20 links in some ways to what Mike said with
21 regard to discontinuities and, I think one of
22 the other responders mentioned the

1 institutional complexity.

2 So you mention in your slide this
3 institutional complexity that we have. And if
4 you think about our world, we have one
5 dimension being the split of responsibilities
6 between the FERC and the state regulators and
7 then the other dimension being how far the
8 states have actually allowed restructuring to
9 go within their industries.

10 And these are two very different
11 worlds, in you're a planner. The only space
12 where I think you can attempt to plan
13 holistically is in the vertically integrated
14 structure, where you sort of have one
15 regulator overseeing things.

16 In the decentralized or
17 restructured parts of the industry where you
18 have the organized, wholesale markets, the
19 ISO/RTO planner is really dealing with the
20 result of the competitive markets.

21 And the whole premise really is
22 that the ISO defines the services it's looking

1 for and let the marketplace respond to provide
2 those infrastructure investments that will
3 meet those requirements, as spelled out by the
4 ISO.

5 So the ISO is responding and sort
6 of reacting and saying, is there anything
7 that's not being attended to from a planning
8 point of view, and then reacting.

9 It's almost impossible for the ISO
10 planner to plan holistically because, by
11 definition, they'd have to adopt some kind of
12 central planning role.

13 MR. PARKS: If I may, just, I
14 would agree with that, but from a national
15 standpoint the argument is to think
16 holistically.

17 So it's not just from any one
18 viewpoint, but how do we look at all those
19 viewpoints. And which makes it a very hard,
20 multi-variable equation to try to solve.

21 But that's a little different
22 viewpoint, but I hear what you're saying.

1 MR. VAN WELIE: Well, here I have
2 a suggestion for you. Which is I think rather
3 than saying, I fear that you might be setting
4 yourself up for an unrealistic goal, which is
5 to try and plan holistically.

6 I think the reality is, given the
7 split in the jurisdictions and the myriad of
8 participants in the marketplace and the fact
9 that we can't anticipate today what's going to
10 come along tomorrow, from a technology point
11 of view, and here I link to Mike Heyeck's
12 comments.

13 Which is the world may evolve in a
14 direction of micro-grids, thereby invalidating
15 some of the assumptions that we have today
16 about what is sufficient in terms of grid
17 planning.

18 So, perhaps it's better to say
19 we're not going to try and plan things
20 holistically, but we need to have a way of
21 allowing the industry to evolve in a way that
22 is efficient.

1 And the point I'd make there is
2 standards can really help that along in a big
3 way. So, as, if you want to allow for sort of
4 organic growth, standards is a very important
5 aspect of that.

6 And if you look at the
7 telecommunications industry, nobody did any
8 central planning in that industry and just
9 look at the explosive growth.

10 One of the things they had to
11 have, though, was standards in terms of making
12 sure that things could actually interact and
13 communicate with each other.

14 So, coming back to this notion of
15 whether you sort of plan things centrally
16 versus you allow things to evolve, would be a
17 comment on the appropriate use of AC/DC hybrid
18 configurations. I like DC, I think it's a
19 wonderful technology, but I wonder whether you
20 should have such a strong focus on this one
21 technology in a vision like this.

22 Because I think there are going to

1 be many ways to solve the myriad of
2 reliability problems that come at us and we,
3 whether we like it or not, we have a
4 decentralized planning model.

5 So I think the DOE obviously can
6 have influence but the way things are working,
7 from a planning point of view, is the job had
8 been given to the regions to go figure out
9 what are the cost-effective solutions to the
10 reliability problems facing that region.

11 Of course there will be inter-
12 regional issues that will also need to be
13 looked at. By and large, what's going to
14 happen is the grid is going to evolve in
15 accordance with market economics, the actions
16 of state regulators and market participants.

17 That's I think what's going to
18 drive things. And so, therefore, I think it's
19 going to be really difficult to really control
20 that.

21 And we just have to accept that
22 reality unless you were to change the

1 regulatory structure around the grid.

2 MR. PARKS: Very quickly, I know,
3 he's looking at me nicely, so he hasn't said
4 no yet. I think that, I agree with, I would
5 actually be very interested to open that
6 question up later and have everybody kind of
7 respond to it a little bit.

8 But I think part of what we want
9 to look at is can we, if we had a great set of
10 tools that we could put in your toolbox and
11 that the regions look at that, that's kind of
12 the way we were looking at this.

13 We may not be articulating that
14 correctly, but the idea is, we're not saying
15 here is the solution set. We're saying, hey,
16 if we look at the toolbox, if we had this kind
17 of tool or that kind of tool, that we can
18 offer to people, then you've got more choices
19 on what you do, other than local decision
20 making.

21 MR. VAN WELIE: I agree, think
22 that's an excellent role for the DOE because

1 you can, if you can take certain technologies
2 to the point where they become cost-effective,
3 with a sort of breakthrough, have a
4 breakthrough in a technology area, you're
5 giving planners another tool to use.

6 I think the same thing is with
7 standards. So I think Sonny or perhaps Bob
8 Curry mentioned this. The optics, in some
9 parts of your presentation, tend to be a
10 little bit centrally planning oriented.

11 And I think you're going to find
12 push-back from stakeholders as you go out
13 there with that. The one thing I did want to
14 also compliment you on was the recognition of
15 this need for advanced monitoring
16 capabilities.

17 I'm convinced we're going to see
18 increasing complexity in terms of grid
19 operations. And we're moving from a world
20 that was literally static, to a world where
21 we're injecting highly variable and limited
22 energy supply all over the system, and it's

1 going to be matched to highly variable demand,
2 micro-grids, DR and so forth.

3 So the amount of variability on
4 the system is going to increase, the
5 complexity is going to increase and I think
6 that the current state of the art with respect
7 to modeling and applications isn't going to be
8 able to handle that future.

9 We're going to have to continue to
10 make investments. I think Mike made a very
11 good point around the use of the PMU data. So
12 we're sort of busying putting out these PMUs
13 all over the place, but we really don't have
14 applications that can use the data coming from
15 those devices.

16 So I think that is an area where
17 the DOE, I think, with your research
18 capabilities, can really add an enormous
19 amount of value to the industry. And I think
20 once again to be paired in some ways or at
21 least cognizant of what EPRI is trying to do,
22 because they are also trying to tackle some of

1 these issues.

2 As you could tell from my
3 comments, it's not clear to me, and you, I
4 guess, admitted that the smart grid have
5 something that is, by design, fuzzy at the
6 moment.

7 And I wondered whether it was too
8 ambitious to try and put all this complexity
9 into a single concept called the smart grid.
10 I can imagine substations becoming more and
11 more sophisticated over time.

12 Better communications between the
13 distribution and the transmission levels.
14 Lots of substation automation and smart
15 systems going in there.

16 The other thing I'm very conscious
17 of, though, is that we're going to see a very
18 fast evolution in terms of the communication
19 interaction between wholesale and retail,
20 which will be complete, will completely bypass
21 the substation.

22 A DR is one such area, but if,

1 just think about electric vehicles. I think
2 that communication between wholesale and
3 retail will open up and it will be appliances
4 like the electric vehicle I think that will
5 drive that.

6 And so I wondered whether you'd be
7 better off developing a framework for inter-
8 connectivity. So I'm showing that here's,
9 we're not going to try and predetermine what
10 the outcome is going to look like, because we
11 don't know.

12 The one thing that we do want to
13 ensure is that there's inter-connectivity and
14 I think that framework, once again, leads to
15 standards.

16 And there are a lot of people
17 talking about standards in these areas at the
18 moment. The one thing that I'm not sure of,
19 because I haven't studied it, is whether
20 there's a sufficient degree of convergence
21 occurring, and I think this is, once again,
22 where the DOE can play a very valuable role,

1 to have a look at what's happening, all these
2 different forums, because the sooner we get
3 convergence on some of these standards, I
4 think the more productive it's going to be for
5 the industry.

6 My fear is that we get, I don't
7 want to use the word stranded investments,
8 because it has another connotation, but let me
9 say islanded investments.

10 Where we sort of rush out and
11 deploy all of this technology and then we come
12 back to use it one day, and we suddenly
13 realize it doesn't talk to each other.

14 So I think there's an area where
15 we're seeing a lot of investment, driven by
16 ARRA investments. I wonder, in the end,
17 whether all of this infrastructure is actually
18 going to be able to communicate, and I think
19 that's an area where DOE can really move
20 things along.

21 And then the final point that I'd
22 make is that I think your emphasis on cyber-

1 security is right on. That's going to be a
2 key issue and I think we're going to be faced
3 with having to evolve in that area, as swiftly
4 as the industry evolves.

5 I don't think there's going to a
6 single-point solution. That's going to be an
7 ongoing investment. Thank you.

8 CHAIRMAN COWART: Thank you,
9 Gordon and thanks to all the commenters.
10 Bill, you have immediate responses or should
11 be just --

12 MR. PARKS: I talked for a long
13 time.

14 CHAIRMAN COWART: All right, I see
15 some, I'm going to ask some questions in a few
16 minutes, but first I'm going to hear from you
17 all and I'll just start on this side and work
18 around. Ed.

19 MR. KRAPELS: Yes, thank you very
20 much, Bill, I think it's a great presentation
21 and very stimulating.

22 I wanted to push Gordon's comments

1 a little bit further. And that is I think DOE
2 does have a very valuable role to play, even
3 more a valuable role to play if you assume
4 that the regional laboratory concept really is
5 our present and our future.

6 In other words, that there are no
7 indications that we're going to be anything
8 other than a nation of regions, electrically,
9 and that therefore DOE's ability to stand
10 above the fray and have some useful things to
11 say about what works and what doesn't work and
12 standardization of certain types of rules and
13 regulations and technologies is unique.

14 No one else can do that as well as
15 you guys can. So I would actually, rather
16 than have that slide that says here's 2010 and
17 2035, take the regionalism as given.

18 There's a terrific new book
19 called, I think it's called American Nations
20 by a guy named Colin Woodard. And it actually
21 breaks the country up into cultural regions
22 and they're quite similar, actually, to our

1 electric regions, which is just stunning and
2 accidental.

3 The other issue that I'm just
4 fascinated by is the natural gas issue. And
5 we've talked about this a lot in New England.
6 In our short term investment sort of way of
7 living that we have, I wouldn't be surprised
8 if ten years from now, 100 percent of our
9 electricity is generated by natural gas in New
10 England.

11 And one of the things that DOE
12 might do, is to be the guardian of the idea of
13 portfolio and risk diversification. That why
14 couldn't you be the folks that say to the
15 regions, watch out what you're doing.

16 FERC does a little bit of this,
17 but could do more than it does in terms of
18 saying do you really want to be 100 or 90, 80
19 percent dependent on a single resource who's
20 price today is fantastic. But 20 years from
21 now, who knows.

22 MR. CURRY: Rich, can I just

1 footnote that? One of the things to keep in
2 mind with all shale development is the
3 enthusiasm for a variety of parties, most
4 recently Dominion at Cove Point to get
5 clearance to put shale gas on the LNG world
6 market.

7 So while transportation and ease
8 of access can keep it at four or three or
9 actually the last quote I had from our gas
10 folks was 198.

11 That ain't the world market,
12 folks. That ain't the world market. And I
13 have one of the Commissioners in Maryland that
14 I would have it in for them if they let that
15 go through, but that's another story.

16 MR. KELLIHER: Just one brief
17 comment and then a medium comment. Just on
18 the brief comment I thought the EPRI Prism
19 studies are worth looking at.

20 So if you're looking at, trying to
21 get the right bounds, I'm not going to talk
22 about Slide 2, anymore. But I thought the

1 EPRI Prism boundaries are probably pretty good
2 and pretty credible.

3 And I think they'd be a little bit
4 different than what you laid out. And just in
5 terms of the medium comment, you know, it's,
6 you did a brave thing and a vision is a vision
7 and it's always, it's hard to try to lay out
8 some vision of what the grid should look like,
9 unless you know what the electricity supply is
10 going to look like.

11 And there's more uncertainty, I
12 think, today on what future electricity
13 supplies are going to look like and probably
14 any other 20 year horizon that I can think of.

15 And there's also more uncertainty
16 on the other end, what demand patterns are
17 going to look like, and there's more
18 uncertainty about technology energy than
19 probably any other 20 year period.

20 So, one thing though I would
21 suggest is I think you understate the
22 institutional barriers and I think others have

1 made that point. And one way graphically you
2 could show that is on your Slide 3, of a big
3 red arrow going in the opposite direction of
4 your four blue arrows.

5 Because, and maybe an arrow that's
6 bigger than those, not all, bigger than all
7 four combined, but maybe bigger than each of
8 those four.

9 Because I agreed there's a need
10 for change in the grid. They're not driving
11 changes in the grid, they're driving a need
12 for the grid to change.

13 But, if institutional barriers
14 prevent that change from occurring, then the
15 need hits a wall. And when I say
16 institutional barriers, I'm not pointing to my
17 former colleagues.

18 I think it's things like,
19 institutional barrier to me is, in part, the
20 ownership structure of the grid, right. We
21 have 500 donors in the grid and a third of the
22 grid is owned by the Government, including our

1 hosts.

2 Well, our hosts, NRECA hosts as
3 well as U.S. Government hosts. And so, and I
4 just don't think they react the exact same way
5 as a for profit company.

6 Most of the grid is owned by
7 vertically integrated enterprises. If you
8 look at how the grid is sited, it's sited
9 under laws that assume local delivery.

10 It assumes there is no interstate
11 grid. So, these are all huge barriers.
12 Questions like how do you get your money back
13 when you make a large investment in a
14 transmission project that provides broad
15 regional benefits.

16 That is much more mysterious when
17 it comes through the grid than in other areas.
18 So there's huge institutional barriers. I
19 think that's one way you could graphically
20 show that.

21 And I would love to think that
22 there will be standardized citing and

1 permitting processes in the next 24 months.

2 But that is a -- I'm going to go out on a limb
3 and say that is a zero percent probability and
4 you might change that time frame to years
5 versus months.

6 (Laughter.)

7 MR. PARKS: The issue is how can
8 we push that space? That's really what we
9 should convey.

10 MR. KELLIHER: But this is laid
11 out as an institutional direction, 24 months,
12 I thought it meant this is going to happen or
13 this, we need this to happen.

14 MR. PARKS: But we didn't say it,
15 well, the point is valid thought, absolutely.

16 MR. KELLIHER: So that, those were
17 my --

18 MR. PARKS: We're not going to
19 solve those in 24 months, I totally agree.

20 MR. KELLIHER: I agree. And I
21 guess I'll dispute Sonny just slightly. I
22 mean I, stakeholder processes are wonderful

1 but if you have, no one can actually make
2 decisions and everyone can offer an opinion.

3 I think stakeholder meetings have
4 a natural limit to their usefulness if
5 decisions never occur. And the fractured
6 nature of decision making, at least at the
7 regulatory level, is pretty stark.

8 And part of it is another
9 institutional barrier, it's just the nature of
10 traditional rate regulation. It is not very
11 friendly towards technology.

12 So there could be fantastic
13 technologies, and if a regulated company gets,
14 has a regulator that denies the technology
15 employment, then it doesn't occur no matter
16 how good it might be.

17 Or if the utility actually doesn't
18 earn more from the deployment than it would
19 using an older technology, what's the point in
20 making deployment.

21 So, I just think the institutional
22 barriers, they do, they will at the very least

1 slow down change, if not actually prevents it
2 all together in many respects.

3 MR. PARKS: If I may just comment,
4 I would say that on the team, and we had
5 diverse, we had people from basic science all
6 the way to, the team actually would agree with
7 you, even the basic technology guys are like,
8 yes, institutional in terms of, if there's the
9 number one thing to solve, that's the thing to
10 solve. And I did not communicate that.

11 MR. KELLIHER: Yes, just classic
12 rate regulation will produce and preserve the
13 black rotary phone for decades. I'm not
14 saying that's what we have on the electric
15 side but it just, the nature of regulation.

16 And I say that as recovering
17 regulator. So, those, I think, those are
18 just, I think there's more institutional
19 barriers than you identify.

20 I think they're a bigger factor
21 and I think they're actually, graphically
22 should be seen as, represented as an arrow

1 going the opposite direction. Thank you.

2 CHAIRMAN COWART: Bob, do you have
3 an additional comment?

4 MR. CURRY: I'm be quick since you
5 were kind enough to give me time already. I
6 heard both Bill and Sonny talk about customer
7 choice, as well as Mike.

8 We're grappling with that right
9 now in New York, where the Bank of America
10 tower, built on 42nd Street and Sixth Avenue,
11 has a pretty significant CHP operation with
12 very little subsidy from the state.

13 They just did it as a marketing
14 tool developer. So what does Con Ed charge
15 them to backstop the trading floor for Merrill
16 Lynch? When you start talking about customer
17 choice and distributive generation, is the
18 expectation that the local level, that the
19 Commission is going to try to keep the lights
20 on?

21 And, if so, do you have built in
22 redundancy or do people, if they're going for

1 distributive generation, take the risk that
2 they may foul it up.

3 And as someone in Louisiana said
4 around the Arab oil embargo, let the bastards
5 freeze in the dark. You know, so it's, that
6 has to be addressed, I think, as a financial
7 issue and as a scope issue for the
8 responsibility of the incumbent
9 regulators/utilities, delivery systems,
10 whatever.

11 Because we are forcing right now,
12 Con Ed to grapple with the idea of
13 backstopping that because we, as a city, would
14 have incredibly reliable service in Manhattan,
15 but the Bank of America/Merrill Lynch trading
16 floor means something to us as a financial
17 capital, so we have to address that issue, and
18 believe me nobody wants to.

19 So that's another thing to get in
20 there as a thankless task.

21 MR. WEEDALL: So, Bill, I saw
22 words up there that led me to believe that you

1 guys have this on the radar screen, but I
2 think it would be good to emphasize, because
3 we're just getting a lot of bang for our buck
4 in this and that is looking at the non-wire
5 solution, non-construction alternatives, et
6 cetera.

7 You know, it's been very well
8 eloquently spoken to today about the
9 increasingly difficult challenge of getting
10 transmission cited, et cetera.

11 We certainly have been
12 experiencing, you know, a lot of that. And,
13 once again, I'm just seeing, you know, that
14 we've made a huge institutional leap and, you
15 know, taking that out to others.

16 So, again, you know, the
17 efficiencies that have been talked about, in
18 any number of ways here, again, it's going to
19 just, these three projects that we currently
20 are working on, I mean easily could be saving
21 us about 150 million dollars.

22 MR. SLOAN: One of the joys of

1 speaking later is that most things have been
2 said, and one of the frustrations is that you
3 have most things already said.

4 To follow up on some of the
5 earlier comments and I, Bill and I talked
6 during the break. I thought that there was
7 insufficient attention to the use of
8 transmission innovation to better use our
9 existing corridors.

10 Whether you're going to do AC/DC
11 interconnections and bury lines or whether
12 you're going to do 765 or greater AC lines and
13 take out a lot of the undergrowth and improve
14 the visual scene.

15 I think that we need to be having
16 the Department look at some of those things,
17 in terms of that toolbox. And then post-
18 stimulus money, I think that we still are
19 going to struggle, institutionally, with
20 facilitating policy maker education to
21 encourage and reward first adopters.

22 I mean they're going sort of back

1 to, I think it was Ed that, no, it was Mike
2 that talked about the natural reluctance of
3 engineers to make change and certainly
4 regulatory and policy makers in general have
5 that same attitude.

6 But somehow we've got to convey
7 that the customer benefits are not going to
8 occur if everyone waits for someone else to do
9 it. And you don't want to be first.

10 And you don't want to second, you
11 want to be fifth. And then Gordon touched on
12 it and that's the Department helping with
13 standards and interoperability efforts with
14 NIST or GWAC or the Department, per se, but
15 making sure that all the vehicles and all the
16 electric chargers communicate and are
17 interchangeable.

18 That, that is doesn't matter which
19 vendor I go to for my whatever, they're going
20 to be able to fit into the system and work.

21 And I guess I, even knowing less
22 than Bob does, from an engineering

1 perspective, the Department certainly can lead
2 in terms of research and facilitation and
3 encouragement and technological exploration,
4 but I don't see anyone else who is really
5 going to engage in the education.

6 Not necessarily the public, I mean
7 the great unwashed masses out there, but
8 you've got to convey that short-term decision
9 making which may hold rates down, may result
10 in larger long-term costs.

11 And that it takes a certain amount
12 of boldness and leadership and that's not the
13 say give the consumer, but to say consumers we
14 hear you. We recognize uncollectibles are
15 rising, but we have got to invest in that
16 future.

17 MR. PARKS: If I may respond to
18 one part of that. We have struggled with, I
19 agree on the education, but it would be
20 really, both, we should emphasize it more.

21 We have struggled to get support
22 to do that. Because people see it as a

1 Department of Labor issue or they see it as,
2 you know, not a traditional technology-based
3 agency's view.

4 And somehow, if there's any advice
5 on how to think about that differently or help
6 to convey our messaging differently about,
7 that would be extremely helpful to us.

8 MR. SLOAN: Well, again, to follow
9 up on that, you and I briefly talked and Pat
10 and I talked on a small project that you fund,
11 help fund, your NARUC, do allow some PUC
12 Commissioners and some very carefully selected
13 state legislators to look at how technology,
14 transmission technology may be able to address
15 their needs.

16 You know, and in several side
17 conversations I said that it's not necessarily
18 the economic difference in whether your
19 invest, does it save you political and time
20 costs in addition and as you address
21 congestion or liability or whatever you are
22 trying to do. And so, I guess, the education

1 aspect for me is focused on the technologies
2 and how technology can help solve problems.

3 Corollary, you know, but yes it
4 will probably cost more money to bury the line
5 than it will be to run it overhead. If you
6 can't build it for three years, because you're
7 stuck in litigation and you have brown-outs or
8 black-outs or, you know, other constraints,
9 you haven't won.

10 And that the regulators and the
11 governors and the people like me, have got to
12 understand that sometimes paying for
13 something, technologically, and allowing the
14 companies to be innovative and even
15 recognizing that everything is not going to
16 work as well as they had hoped and not punish
17 them for it.

18 But that to me is part of the
19 education of the decision maker, and should
20 fall within the Department's purview.

21 CHAIRMAN COWART: Wanda.

22 MS. REDER: Yes, Bill, first of

1 all, good job. I think this is a real
2 holistic view and it articulates the
3 technology and where we need to go quite well.

4 And my comments aren't necessarily
5 on the PowerPoint itself, but more: now what?
6 And I think that really has a lot of
7 implication on how well it can get socialized
8 and implemented.

9 So, within that, we've talked
10 about the grid kind of being between
11 generation and consumer and there's a lot of
12 variables throughout the whole thing.

13 I think we're going to have to
14 expand beyond our traditional boundaries in
15 order to get us a vision that we can gravitate
16 around.

17 And I do believe that we're going
18 to have to involve the consumers more in that
19 process. You know, to the extent that they
20 want to do the same thing the same way versus,
21 you know, get into a world that truly is
22 sustainable and more efficient drastically

1 alters what happens between generation and the
2 consumer.

3 So, somehow, I really believe that
4 that's an important piece. And others made
5 the point on nuclear versus natural gas on the
6 generation side.

7 So even though we like to draw
8 that red box around what domain is the domain,
9 we're going to have to get a little blurry on
10 the edge in order to, in order to get a vision
11 that we all gravitate around.

12 Now, do you want to comment on
13 that, because I've got some others to.

14 MR. PARKS: First I agree with you
15 that those boundaries, and yet at the same
16 time, we have to boundary activities.

17 MS. REDER: Yes, right.

18 MR. PARKS: There's always, I mean
19 you could go infinitely. And so the key is to
20 study and understand, from our viewpoint,
21 where those interfaces are that we have to
22 work on from this side and who do we have to

1 engage on, if it's another side of the
2 interface or the interface itself.

3 But I think that's a huge issue.
4 And traditionally, DOE is not good at non-
5 stovepipe activities. And we're trying to
6 break that. But it's not an easy thing to do.
7 Either in the side of DOE or working within
8 the industry.

9 MS. REDER: Yes, that's a good
10 point. I do think that rather than taking
11 this document and saying, okay, here's a
12 vision now comment on it. To the extent that
13 we can find a way to regionally involve people
14 to get to, and might accomplish a couple of
15 things. Because you could ultimately get
16 folks to a consistent vision and, in the
17 process, provide some education, because they
18 become much more aware of the ramifications.

19 And many times when you have that
20 basement conversation, folks don't necessarily
21 have an understanding. And so they give the
22 response, knowing what they know.

1 So perhaps there's a way that we
2 can create a stakeholder base and, you know,
3 and an involvement process that can accomplish
4 a couple of things in the process.

5 Another comment that I have been
6 wondering about, is the whole modernization
7 aspect. I think, generally speaking, we have
8 underinvested and the assets, on the whole,
9 are aging.

10 And I think that we need to figure
11 out, if this is our vision, you know, what is
12 the investment that it's going to take in
13 order to turn that corner and actually get the
14 appropriate technologies inserted at the
15 appropriate places so we're positioned for the
16 future.

17 And, you know, I think more of an
18 understanding of the rate of aging assets and
19 the implications of different scenarios around
20 like for like versus a truly, you know,
21 modernized with the most efficient and highest
22 tech, would be very useful to facilitate

1 conversation.

2 And then that kind of leads me up
3 to, you know, the whole substation demo. I
4 like the idea of a demonstration, but I agree
5 with other comments that I think it goes much
6 more beyond the substation, the distribution
7 system is likely going to become very dynamic
8 along with storage and we've got to figure out
9 the interoperability of the whole thing.

10 And if we just isolate it to the
11 substation alone, we're probably not going to
12 get what we need.

13 MR. PARKS: This is a
14 communication issue more than a difference of
15 opinion. Because we were using that focus to
16 talk about where all those things happened.

17 And it's not that it all happens
18 at the substation, but it's the linkage. And
19 so, whatever the mechanism, and we're open to,
20 where that activity happens that you're
21 talking about, is what we're after. It's how
22 do you get all that to tie together.

1 How does it, where does that
2 happen? Is it a single point or is it really,
3 how do you get that seamlessness. And that's
4 the concepts are what we're after, not the
5 focus on especially what you would
6 traditionally consider a substation.

7 We need to explain that better
8 from our view.

9 MS. REDER: And I get, yes, but
10 the last point in the slide that had the next
11 steps, actually said, you know, wrap up with
12 some lessons learned on the stimulus projects
13 and I actually think if we move forward, I
14 think it might have been the slide before that
15 or before that. There you go.

16 Leverage prior work within 60
17 months. And I think that if we moved forward,
18 sooner rather than later, both on promoting
19 the successes, that's a very useful exercise
20 and there are certainly a lot of success that
21 we can advocate now.

22 And the other is there's likely

1 barriers that people have been very challenged
2 with, and that can be fruitful for us to
3 channel efforts in order to remove them.
4 That's it.

5 CHAIRMAN COWART: And Ralph.

6 MR. MASIELLO: I'll try to be
7 brief. One thread through all the comments
8 has been the amount of uncertainty and looking
9 at, and setting up a vision for the future,
10 right.

11 We've talked about gas prices,
12 nuclear or not. You know, another obvious one
13 would be an oil shock, it's not unlikely and
14 that would change the EV picture dramatically,
15 right?

16 The thing that the utility
17 industry is really bad at, is understanding
18 uncertainty and putting a value on
19 flexibility.

20 We don't have the planning
21 mechanisms to let us essentially say this
22 transmission line is more valuable than this

1 other one. Even though in our primary
2 scenario, that's not the case, because it
3 gives us flexibility against future supply
4 issues. Or today future demand development,
5 right.

6 So there's a huge gap there and
7 how do you assess and then put a value on --
8 I'm going to use a bad word and say
9 optionality. But right now, in the storage
10 space, the valuation problem gets completely
11 wrapped around that, and there isn't a state
12 utility commission in the country that's
13 prepared to accept the valuation that's
14 couched in Wall Street language.

15 But this afternoon's discussion
16 kind of convinces you that transmission
17 planning, distribution planning all needs to
18 be put in that framework, too.

19 CHAIRMAN COWART: Pat.

20 SECRETARY HOFFMAN: I'm just going
21 to add to the discussion and start off that,
22 I mean, I think we all recognize that

1 predicting the future is near impossible and
2 change is tough.

3 But going after what Mike said, I
4 think you were very insightful in some of your
5 comments. And that what we really need to do
6 is continue to strive for additional
7 capabilities, so we can make decisions that
8 are built on analytics, you know, cost
9 benefits.

10 And really start building, I think
11 the information and availability of
12 information in the future may change
13 expectations by customers, by regulators, by
14 states, by regions.

15 And that is something that we'll
16 always have to, as more information comes out
17 and as more people start taking a look at that
18 data, we'll start to get a better
19 understanding of some of the directions.

20 But going with expectations I
21 think that is what Sonny and others talked
22 about is really where we're going to go after.

1 What is the expectations of consumers in the
2 future. And how are they going to define that
3 expectation. It's something that when we went
4 through this exercise we struggled with, is
5 what are the metrics? What are the future
6 metrics that we should look after or look for
7 when we talk about the grid of the future.
8 And we struggled with it.

9 It's not a simple metric, it's a
10 series of metrics, but it comes down to what
11 is the expectations from consumers. And I
12 would say also, what is the metric as we
13 continue to evolve with respect to reliability
14 and interdependency.

15 I mean we're talking about
16 reliability metrics or the electric
17 infrastructure, it's going to start spilling
18 over to what is the metric on the gas
19 infrastructure. And we're going to have to
20 look at more of the interdependencies of those
21 infrastructures as we pull them together, so
22 I can see things coming along the lines where

1 we're going to start having expectations with
2 respect to the gas infrastructure because it's
3 going to effect the electric infrastructure as
4 we move forward.

5 One of the things we talked, I
6 believe that it's going to be a regional
7 approach as we evolve the system. I'm going
8 to look at regional assets. We're going to
9 look at the balance between central and
10 distributed. But the thing that I guess I
11 would like to advocate or ask you all to think
12 about, is even though we're looking at a
13 regional development, that we continue to have
14 visualization or analytics at the n+2 level.

15 So that you're looking at yourself
16 plus the regions around you, to a certain
17 extent beyond just, you know, the region
18 itself. So it's really going insane. Okay,
19 we can look at and develop regionally, but
20 make sure when we're looking at reliability or
21 visualization or as we look at anything
22 further with analytics on the system that

1 we're doing an n+ something perspective.

2 And I think that ties to some of
3 the interoperability comments. You know, one
4 thing when I kind of came in this position, is
5 I started out by saying, you know, there's a
6 lot of uncertainty.

7 And I was hoping that the
8 Department of Energy would lead efforts to
9 provide clarity and certainty. I think I
10 failed miserably.

11 If anything, we've gotten more
12 confusing and the industries are struggling
13 still tremendously. I don't know how to bring
14 a resolution to that, accept that I think it
15 goes back to more transparency of information
16 or more communication in how we're doing
17 business.

18 Which goes back to larger
19 balancing area. It goes back to really how do
20 we tackle some of those difficult issues of
21 coordination and communications across the
22 seams.

1 CHAIRMAN COWART: Well, we have
2 David and David this, each thought is giving
3 a rise to new thoughts.

4 MR. R. MEYER: I've been struck so
5 far at how there's been, no one has mentioned
6 the availability of R&D money. And we have to
7 take that pretty seriously.

8 That is, if the availability of
9 R&D money is a problem, it makes it all the
10 more necessary for us to have a clear sense of
11 priorities and I'm hoping we get, we cast the
12 net broadly and get as much input as we can
13 about how do we address this range of possible
14 R&D topics, R&D projects, with limited funds.

15 Which ones are the real
16 priorities, where are the synergies between
17 some of these things. Ideally, we'd like to
18 pursue a number of things in parallel, because
19 you never know exactly where the breakthroughs
20 are going to come.

21 So that is an argument for not
22 trying to pick, not trying to overprioritize.

1 So this is going to be a major dilemma and
2 we're going to need all the help we can get.

3 CHAIRMAN COWART: Dave.

4 MR. NEVIUS: Thanks. I was trying
5 to remember a presentation that NERC had from
6 a couple of university folks, a number of
7 years ago. And I finally found the reference.

8 It was Clint Andrews from
9 Princeton University and Stephen Connors from
10 MIT. And Steven Connors runs a group called
11 AGREA. I guess it stands for Analysis Group
12 for Regional Energy Alternatives.

13 And I don't know, Bill, whether
14 you're familiar with their work, but they
15 talk, they came and spoke to the NERC Board
16 about multiattribute scenario analysis.

17 To bring together people with
18 various positions and desires to reach some
19 agreement. And then had a technique to go
20 about doing this. And it sounds a lot like
21 what we're trying to do here. Instead of
22 prescribing a centrally planned solution or

1 letting everything come up from the bottom, it
2 brings all of that together in a framework
3 that allows people to reach agreement.

4 I don't know whether that would
5 have any value in this exercise or not. But
6 I know I was impressed at the time with what
7 Connors and Andrews presented. I mean Clint
8 is not longer at Princeton, I forget where he
9 is now. I think he's at Rutgers. Stephen
10 Connors evidently is still at MIT and he runs
11 this program which, it's pronounced agree,
12 even though the initials are AGREA.

13 So I recommend at least looking
14 into that.

15 MR. PARKS: We will do that. I am
16 a little familiar and have been involved a
17 little bit with planning like that.

18 For example, there's an institute,
19 called the Millennium Institute here in DC,
20 that works with countries around the world and
21 also localities, on looking at what are all
22 the variables that affect things, what kinds

1 of people, that sort of thing.

2 It's a multi-layered and they go
3 through a series of developing different kind
4 of things.

5 And I was also involved with Maui
6 County in doing that that. They look at
7 energy issues, they look at water issues, they
8 look at agriculture issues, and tied them all
9 together in their process of doing that.

10 And those are very powerful tools.
11 And lastly, Sandia and some of the other labs
12 are working, we're doing one project for the
13 energy, water and access issues that are, they
14 have some really neat front-end tools that
15 have a lot of embedded data in them.

16 But the front-end, dashboard, if
17 you will, is just fairly easy for decision
18 makers to say, okay, if I want to such water
19 out of the Rio Grande Valley, it's going to
20 have this impact on agriculture and this
21 impact on that.

22 And there's some very neat things

1 in that space that I think would help decision
2 making. We should continue to look.

3 MR. VAN WELIE: Yes, Pat, just
4 listening to you sort of describe the
5 struggles of trying to articulate a vision,
6 made me wonder whether you shouldn't take it
7 from another angle, which is to say don't
8 bother trying to define some end state
9 because whatever you define is going to
10 resisted in some form or fashion.

11 And there will always be a million
12 reasons why it's a little different from what
13 you've put out there. And so rather than
14 trying to define a vision in physical terms or
15 in terms of outcomes, define it in terms of
16 the principles you want to say embodied in the
17 regional solutions. And building a little bit
18 on, I guess, what Ed said, which is in one of
19 the principles could be this notion of having
20 some diversity of supply, as an example.

21 Another notion could be the notion
22 of interconnectivity or interoperability. And

1 so one could then cast for the DOE the role of
2 sort of the adult in the room when it comes to
3 some of these key principles but you leave the
4 implementation up to the regions.

5 Because I think, for the DOE to
6 try and specify the future, first of all it's
7 impossible to know for sure what this is going
8 to be.

9 The jurisdictional set up that we
10 have is going to make it impossible for you to
11 even do anything about it. So, you'll just be
12 continually running at a brick wall.

13 Maybe you can define it in a
14 different way and be successful by influencing
15 on sort of, you know, three to six different
16 principles and sort of driving those issues
17 home.

18 In addition to perhaps picking
19 certain technologies that you think are close
20 to a breakthrough and might, you know,
21 dramatically change outcomes and sort of focus
22 on trying to stimulate R&D investment in those

1 areas. Just a thought.

2 CHAIRMAN COWART: Oh, I see, this
3 conversation has to come to a close at some
4 point. Ten seconds granted.

5 MR. KRAPELS: David made a very
6 important point. It would be very helpful to
7 the committee if there was some way of
8 presenting the R&D options and dilemmas a
9 little bit more starkly than was done here,
10 where it's fairly aggregated.

11 So, anything you can do about
12 that, would be great.

13 CHAIRMAN COWART: All right and I
14 guess one final comment. I'm channeling Pat
15 here, is on the nature of this document and
16 the process and the conversation is to
17 emphasize that I think we all see it as a
18 living document and a conversation, an ongoing
19 conversation, that may end up, as a number of
20 people have noted, being regional in nature,
21 as it evolves. And that there isn't going to
22 be a single, perhaps there isn't going to be

1 a single, national view here. Although, DOE
2 needs to have a coordinated strategy.

3 But it sounds like the process is
4 going to necessarily continue far beyond this
5 meeting today. And it may very well be
6 appropriate for us to think about this as one
7 of the organizing tools for our 2012 work
8 plan.

9 I'm just conscious of the time,
10 trying to keep us on schedule. And I know we
11 have at least one member of the public who has
12 asked for an opportunity to address us.

13 And so I'd like to turn to that
14 right now. As you may have seen, you have to
15 be close to the microphone.

16 MR. BANDERA: Yes. Thank you very
17 much for giving me the opportunity to speak.
18 I'm Derek Bandera with GenOn Energy and one
19 thing, as we talked about the future of the
20 grid, and you consider the work plan for 2012,
21 we're all aware of significant changes that
22 we're going to see on the grid when we talk

1 about what the reliability of grid is going to
2 be going forward. And one element that may be
3 prime for discussion amongst this group, might
4 be something relating to the transition to the
5 future following the environmental regulations
6 that we see promulgated that wrap out this
7 year.

8 One reason that I think it might
9 be particularly useful within this group, that
10 as GenOn is a former Mirant Company, it had a
11 run into circumstances relating to the DOE
12 Emergency Authority, which is a tool of that,
13 under emergency situations.

14 DOE can direct generators to run.
15 And as the environmental regulations put some
16 pressures on certain units that may, may find
17 itself not going to be in the market anymore,
18 trying to retire or in the process of getting
19 upgrades, the importance of that backstop
20 emergency authority is going to be something
21 that people are probably going to be looking
22 to.

1 And a critical element of that is
2 actually in the instances when it's been used,
3 it really doesn't work that well in the
4 presence of environmental conflicts.

5 The Potomac River Plant in
6 Alexandria, Virginia, was ordered to run under
7 the DOE Emergency Authority and the plant did
8 run to keep the lights on in Washington, D.C.,
9 but it still was penalized and fined for
10 environmental conflicts. And the company
11 was put in a situation where it chose to run,
12 but it was exposed to conflicting
13 environmental regulations.

14 So, this seems to be a problem
15 that's probably going to be much more
16 highlighted coming forward and it seems like
17 this group, with the, you know, the thoughtful
18 people that are here, would be excellent to
19 discuss and think about what tweaks for the
20 tools, as we make the transition to the energy
21 future and what, going forward, we might want
22 to do to make sure that the transition to the

1 future is reliable transition and make sure
2 that the lights stay on.

3 And the environmental requirements
4 that are in place or maintained. Thank you
5 very much for the opportunity.

6 CHAIRMAN COWART: Thank you, is
7 there anyone else?

8 (No response.)

9 CHAIRMAN COWART: All right, then.
10 I think we can declare this meeting adjourned
11 and I think we'll hear from Peggy as to what's
12 next.

13 MS. WELSH: One housekeeping note.
14 Bill's presentation, for those of you from the
15 public who are here, it's not going to be
16 available until after the NARUC meeting, which
17 is in mid-November.

18 We have promised NARUC that we
19 would share it with them and would not put it
20 out for public -- for the public, until then.
21 So, EAC members, please hold your copies
22 close.

1 At the request of the Department
2 we don't want to look bad in front of our
3 state regulator friends, because that promise
4 was given to them.

5 There is an EAC website, so for
6 those of you from the public, please check the
7 EAC website often after November 15th.

8 Because that is at the end of the
9 NARUC meeting and we will get it up. DOE also
10 wants to take all of these comments and have
11 the ability to tweak the presentation based on
12 what they heard today.

13 So, thank you very much. I had
14 given different information out at the front
15 desk, so EAC members and DOE staff are invited
16 to a Dutch treat dinner at Ted's Montana
17 Restaurant across the street. The address is
18 on your agenda.

19 We gather there at 5:30 for happy
20 hour and dinner is at 6:30. Thanks everybody.

21 (Whereupon, the above-entitled
22 matter was concluded at 5:05 p.m.)

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Before: US DOE

Date: 10-19-11

Place: Washington, DC

was duly recorded and accurately transcribed under
my direction; further, that said transcript is a
true and accurate record of the proceedings.

Neal R Gross

Court Reporter

NEAL R. GROSS

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